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ABSTRACT

The emphasis in this bandbook is on simple, inexpensive methods of producing effective visual aids. Various methods of lettering are shown, and the planning of a layout for visual materials is discussed. Ways to make and use chalk boards, flannel boards, and bulletin boards are demonstrated, as well as the techniques of silk screen, hand duplication, model building, and puppet making. The production of charts, posters, flash cards, and flip books is described. Some suggestions for combining various media into an effective exhibit are offered. (JY/MF)

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COMMUNICATIONS RESOURCES PRESENTS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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The multiplier handbook

AGENCY for
INTERNATIONAL
DEVELOPMENT

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SECTION 1

HANDMADE MATERIALS

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multiplier handbook

THERE ARE SEVERAL KINDS of effective visual materials. Many of them are inexpensive and YOU CAN MAKE THEM . . . in several ways, using local materials. Perhaps you will say "But I cannot draw," or "I cannot make things with my hands," or "I do not have time to make these things."

Section 1 is devoted to you regardless of your field of endeavor . . . to encourage you to plan, to make and use visual materials which can transmit knowledge and skill to other people.

A PERSON DOES NOT HAVE TO BE AN ARTIST to draw a stick figure on a chalk board, plan and make a poster, or develop a simple, meaningful flip book. When you have need for more and better communication, think of the many ways to communicate. Planning ahead, careful selection of the material to be made and then using that material properly may give you the tools of motivation or understanding needed to get others interested in your goals, whether they be social, economic, or technical betterment for the world of tomorrow.

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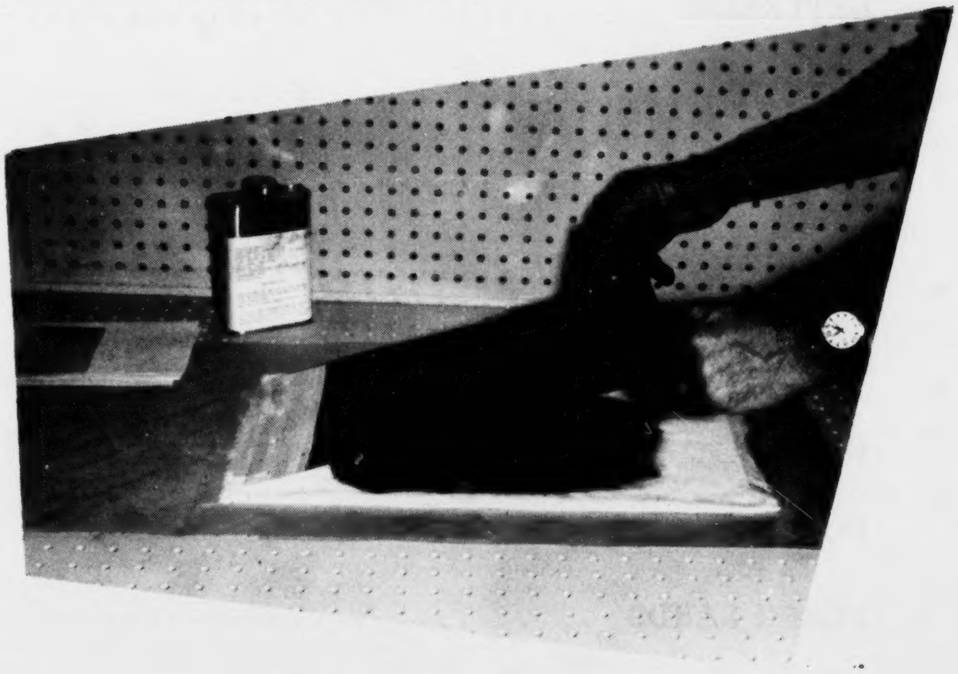
* * *

NOTE: The use of trade names or products in this Section does not indicate endorsement of them by the United States Government.

Planned and compiled by Donald I. Jordan, Utilization Officer, Communications Resources Staff, Agency for International Development, Washington, D.C.

"The helping hand you are looking for
may be at the end of your own arm."



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Indiana University, Bloomington, Indiana.
Washington County Closed-Circuit Educational Television Project, Board of Education, Hagerstown, Maryland.

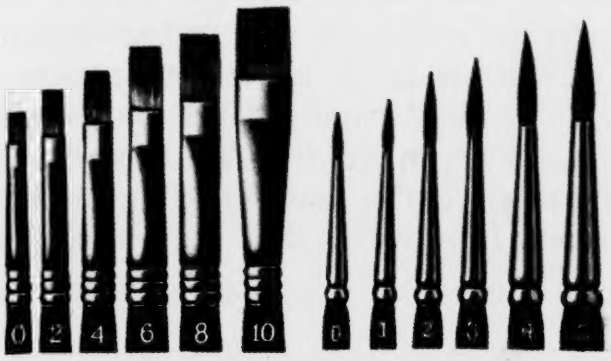
We are especially grateful to A.I.D.'s Printing, Distribution and Graphics Division for their guidance and technical advice in the production of the Handbook.

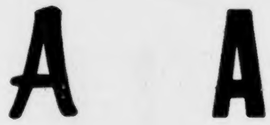
HAND LETTER WITH INK OR PAINT

There are many ways to hand letter, using paint or ink. When you decide to letter your materials in this manner, you may use any of the following:

Brushes

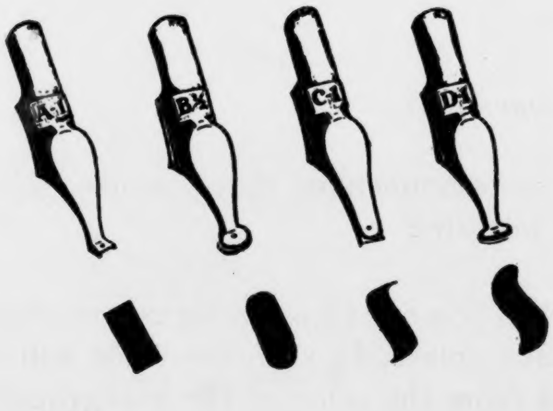
Brushes are found in two styles—round and long—and are in various sizes.





Lettering Pens

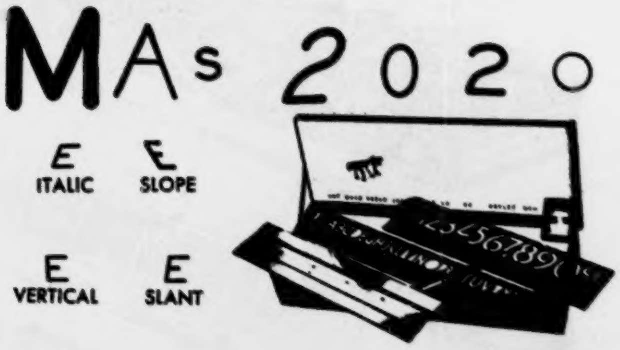
Lettering pens are usually made with four styles of points:



square *ball* *shading* *elliptical*

LETTERING PENS AND GUIDES

Leroy and Wrico are two popular trade names in the manufacture of lettering sets. With a little practice you will find lettering will be very easy with the guides. Instruction booklets and all materials needed comprise these sets.

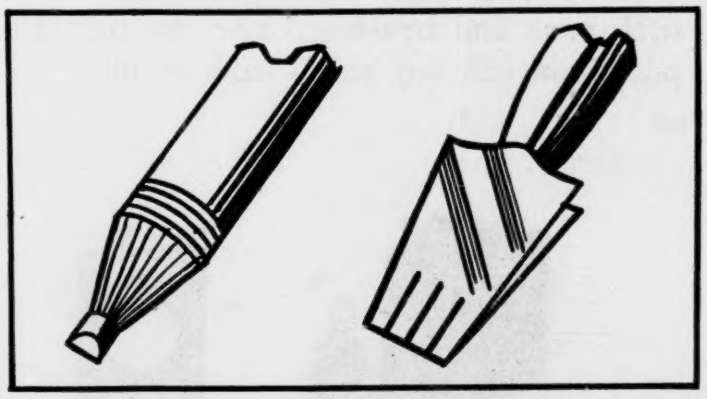


"Duckbill" Pens

The "Duckbill" will provide you with a wide stroke and can be used for rapid lettering.

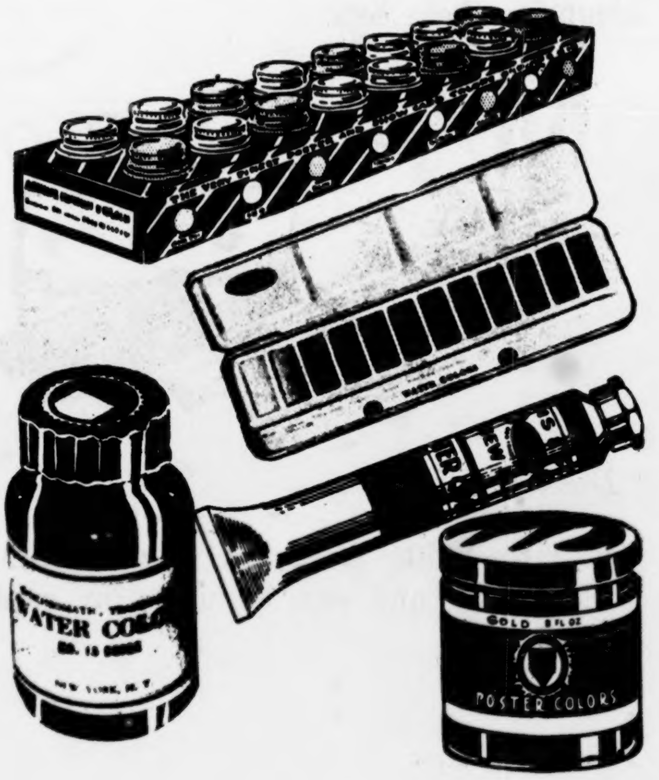
Felt Tip Pen

Another pen for rapid lettering on paper, glass, cloth, wood, metal, or plastic.



felt tip pen *duckbill pen*

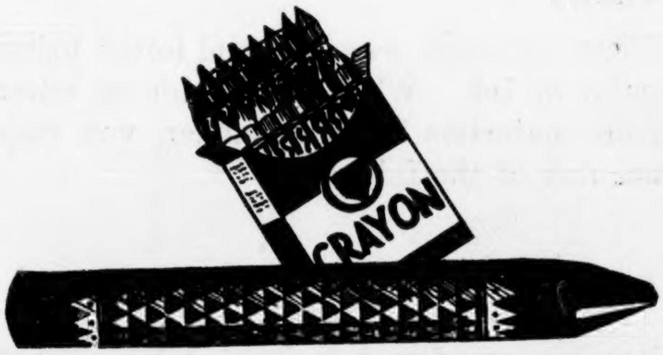
There are several kinds of paint available in the preparation of display materials. Most dealers and several commercial houses carry paint in bottles, jars, and tubes. Water color sets are common in most places.



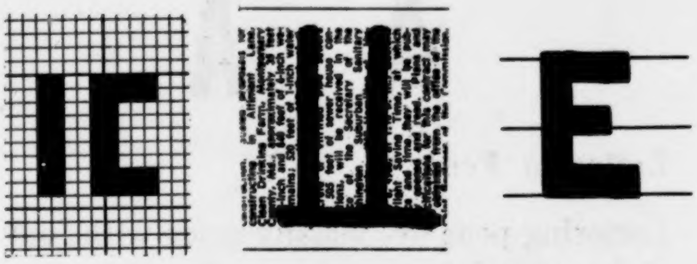
India ink is especially useful in lettering since other types of ink are usually too transparent. This ink can be used both with pens and brushes. For the felt tip pens, you can buy small cans of ink.

BLACK
INK
BLACK

For rapid coloring, crayons can do a good job.



Remember that there are three ways for you to make neat, straight letters with materials which you may find around you. You can use graph paper, newspapers, or ordinary lined paper. Mark out your letters, ink them, and then cut them out. Or, you may want to leave them on the background from which they have been made.



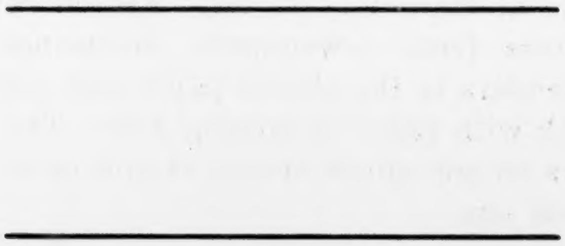
Suggestions

It is recommended that you use India ink in lettering.

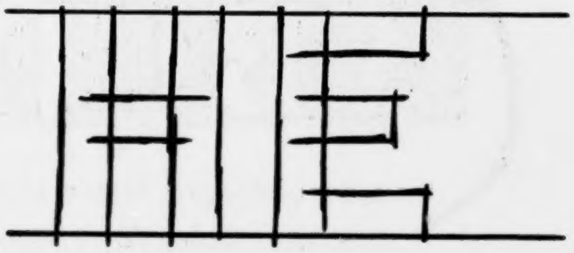
When you are using water colors or poster board colors, be sure the color will stand out from the color of the background material you are using.

YOU CAN MAKE LETTERS

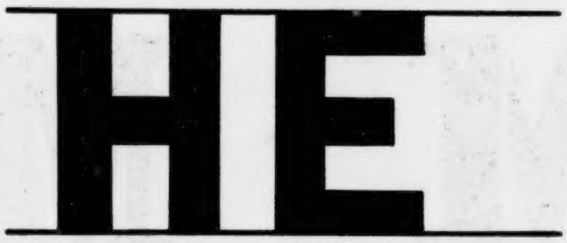
If you decide that you would like to make your own lettering, there is a variety of ways for you to do it. In hand lettering, there are certain steps which you should take to assure a neat job.



draw guidelines for all lines to be lettered



sketch in letters to get right spacing. Use soft lead pencil.

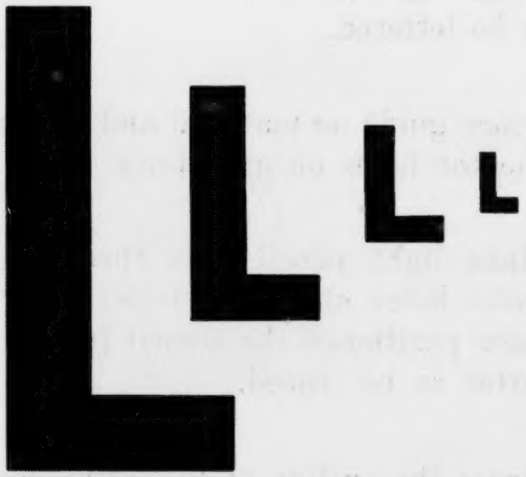


Now you are ready to paint or ink in the letters.

Erase the guidelines when you are finished.

Size of lettering is all-important in preparing flip-charts, posters or other display materials. The following chart is for your convenience in determining minimum letter or number sizes to use when preparing materials:

Viewing Distance	*Letter or Number Size*
64 ft.	2 inches
32 ft.	1 inch
16 ft.	½ inch
8 ft.	¼ inch



Suggestions for Lettering—

A. Use upper case (capital) letters for better legibility.

B. Guidelines lightly drawn on the backing material will help in keeping uniform height of all letters.

C. Remember that for legibility, the larger the letter, the thicker it should be.

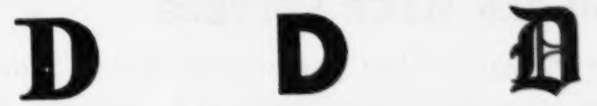
NOTE: The above information should apply for any lettering which is going to be hand-printed.

STENCIL GUIDES

Stencil lettering guides are made of oiled carboard, die cut with letters and numbers. They are available in Roman, Gothic or Old English letter styles, upper and lower case, and ranging in size from ½ to 8 inches. The guides have indicator holes which make alignment and spacing easy for the user.

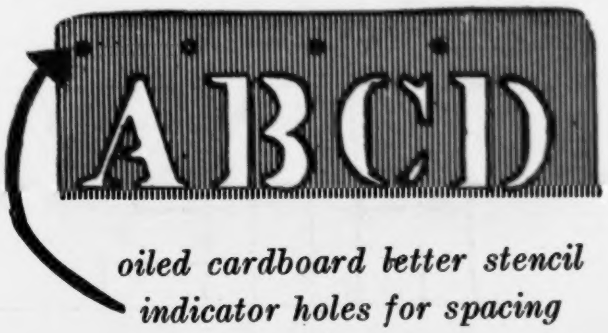
To use stencil letter guides:

1. Draw light guidelines on the material to be lettered.
2. Place guide on material and line up indicator holes on guidelines.
3. Make light pencil dots through indicator holes above the letter after you have positioned the stencil for the first letter to be traced.
4. Trace the outline of the letter desired.
5. Move stencil to the next desired letter, lining up indicator holes on guideline. Place indicator hole to the right of the first letter, directly over the dot you made. This gives proper spacing.
6. Repeat the above with each letter until word is formed, skipping one set of indicator holes before starting the next word.

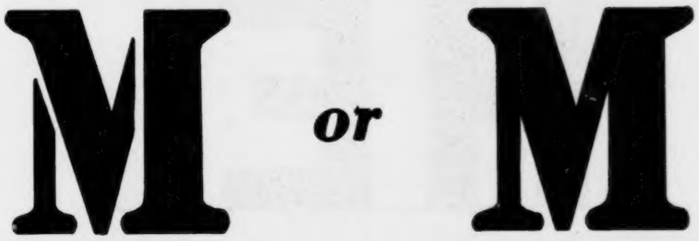


Roman *Gothic* *English*

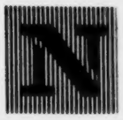
You can make your own stencil lettering guide. Waxy oiled stencil paper is available at stationery stores. Fasten cutout letters from newspapers, magazines or calendars to the stencil paper and cut out both with razor or cutting knife. The letters on any single stencil should be of the same size.



Preserve your lettering stencils by storing them flat.



When inking or painting your stenciled letters, you may want to fill in the blank area of the letters and make them complete.



Stencils may also be used as templates to outline letters.

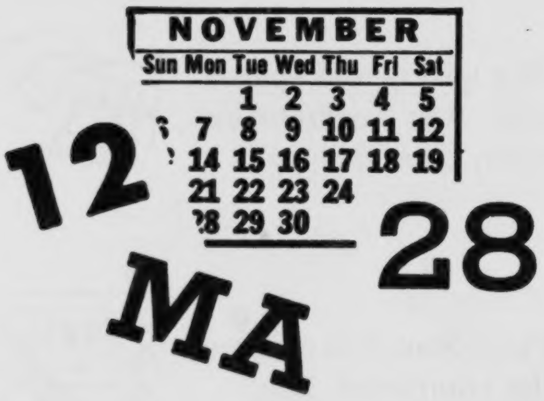
Metal stencils are now being manufactured.

CUTTING LETTERS FROM READING MATERIALS

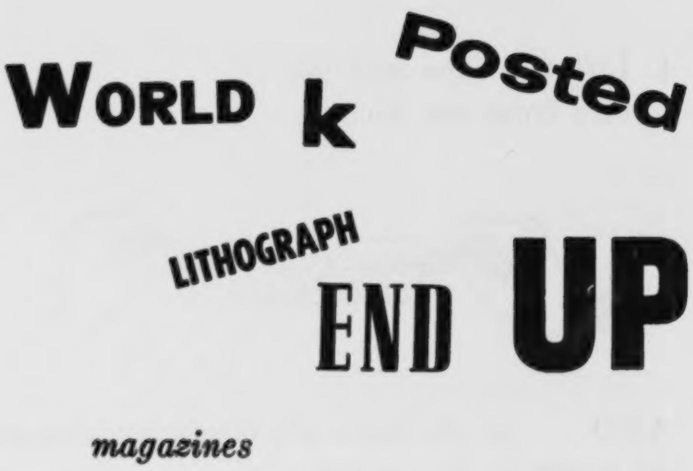
Wherever you may be, you will find several materials available to make your lettering problems easier. You can cut letters from newspaper headlines and advertising, magazines, brochures, advertising posters, catalogues, calendars and other printed mater.

By collecting these letters, you will soon have a sizable number of letters, which you can store in envelopes or letter storage boxes. By keeping various sizes of letters separated, your lettering paste-ups will be made rapid and easy.

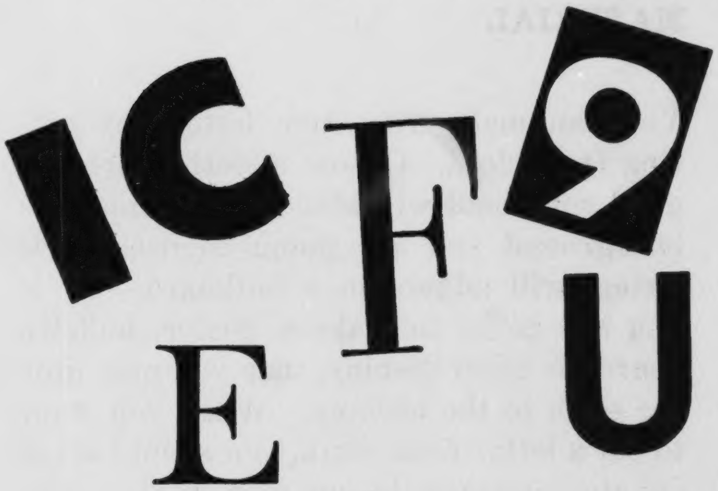
Following are some cutouts showing various styles and sizes:


NOVEMBER
Sun Mon Tue Wed Thu Fri Sat
1 2 3 4 5
7 8 9 10 11 12
14 15 16 17 18 19
21 22 23 24
28 29 30
12
28
MA

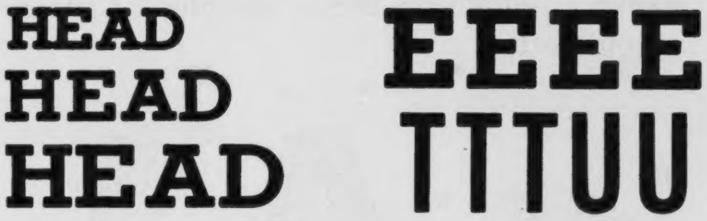
calendars


WORLD
k
Posted
LITHOGRAPH
END
UP

magazines



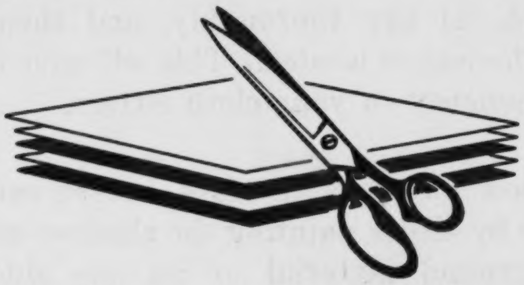
newspapers


HEAD
HEAD
HEAD
EEEE
TTTUU

catalogues

CUTTING LETTERS FROM COLORED PAPER

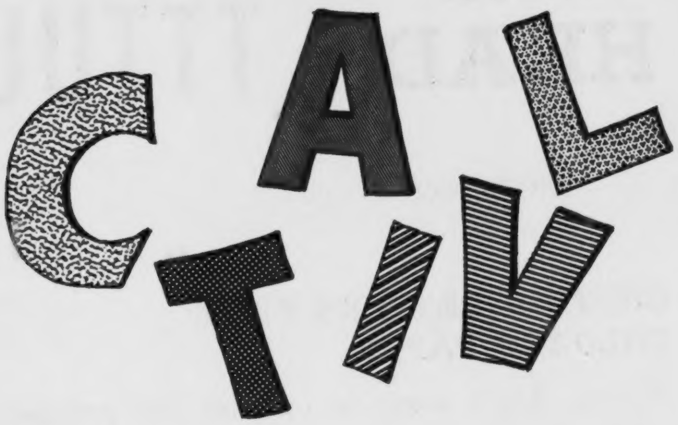
If you don't want to cut out the printed material you would like to use, you can trace them on plain or colored paper and cut them from that.



Shadow effects on colored paper can be made by cutting two colors at the same time and offsetting them when you paste them up.

LETTERS CUT FROM CLOTH MATERIAL

You can make attractive letters by cutting from cloth. Choose a cloth which has good color and will stand out against the background you are going to use. Felt letters will adhere to a feltboard. Or if you are going to make a poster, bulletin board, or other display, then you may glue the cloth to the backing. When you want to cut a letter from cloth, you should mark out the letters to be cut first so that they will be standard in size. They may be marked out with pencils, crayons, or chalk, depending on the type of cloth you are using. Below are some samples of cloth cutout letters:



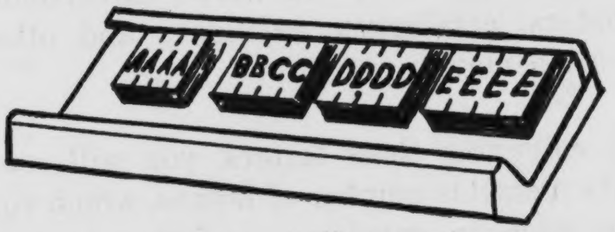
If you wish to make stiff cloth letters, glue the cloth to heavy cardboard, or Bristolboard, let dry thoroughly, and then cut out the letters needed. This will give more permanency to your cloth letters.

Shadow effects with cloth letters can be made by either painting the shadow on the background material or on one side of the cloth letter.

felt letters are available commercially—ready to use

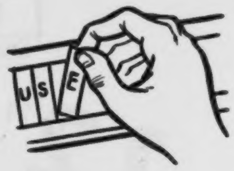
FOTOTYPE (prepared letters)

These letters come in pads and are of many styles and sizes. A self-aligning composing stick is needed in this process of lettering.

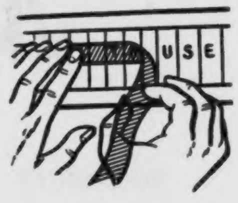


There are four steps in the preparation of printed matter when using Fototype:

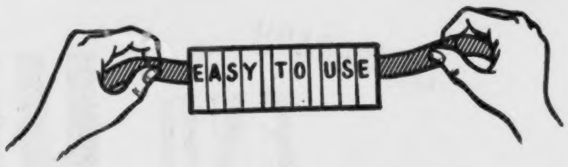
1. Tear required letters and spaces from the perforated pads and assemble in order.
2. Slip letters and spaces into the composing stick, blue side up.



3. Place Scotch tape over the completed line.



4. Lift the tape and letters from the stick.

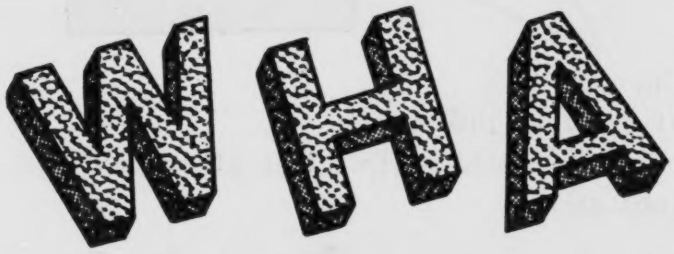


AND . . . on the back are the black letters all ready to be pasted.

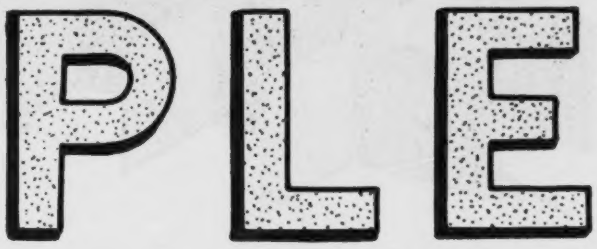
READY-CUT LETTERS

There are several kinds of ready-cut letters available at art stores or from commercial sources.

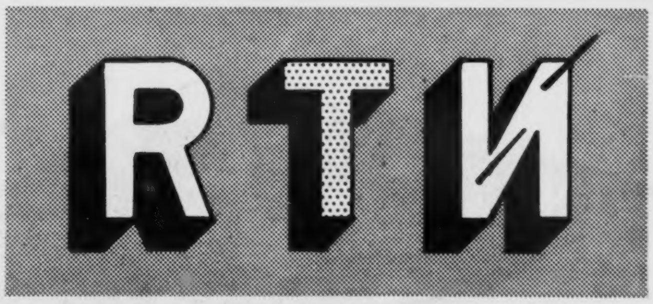
You can obtain ready-cut letters in many sizes and styles. Any of the following kinds of letters can be purchased in sets:



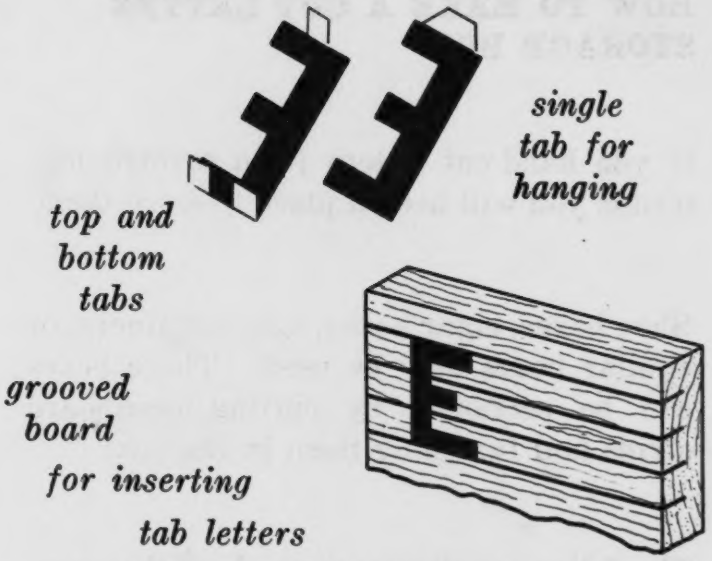
Wood or masonite cutouts are smooth, natural wood or colored.



Cardboard cutouts are available in a variety of sizes.


RTN
front tile letter
glue backs
pin backs

Tile letters have either pin backs or adhesive backs for adhering to background


single tab for hanging
top and bottom tabs
grooved board for inserting tab letters
E

Menu board letters can be set up quickly, but they require a slotted board.

And . . . . there are other kinds—

Gummed paper letters are made in various sizes, styles and colors.

Cork letters can be painted with show-card colors, washed and repainted. They are backed with glue and will adhere to wood, metal, plastic, paper and glass.

Plastic cut letters come in block style and are limited in color and size. They have adhesive backing and can be re-used.

When using cut letters, space them on backing material. For aligning use straight-edge. Pick up one letter at a time, and adhere with rubber cement or prepared adhesive.

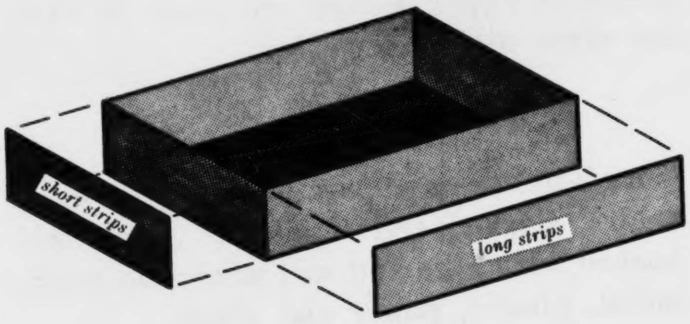
HOW TO MAKE A CUT LETTER STORAGE BOX

If you hand-cut letters from printed materials you will need a place to store them.

Shoe boxes, cigar boxes, egg containers, or similar boxes may be used. These boxes can be sectioned by cutting cardboard strips and fastening them in the box.

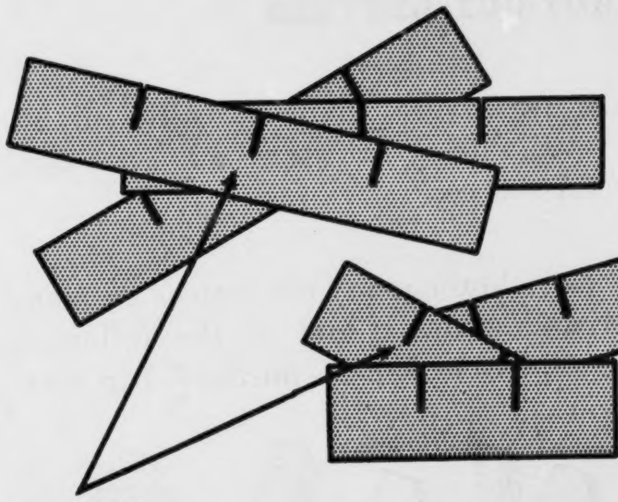
The following illustrations show the steps in preparing a sectioned cut-letter box.

Find a box adequate to hold the cut letters.

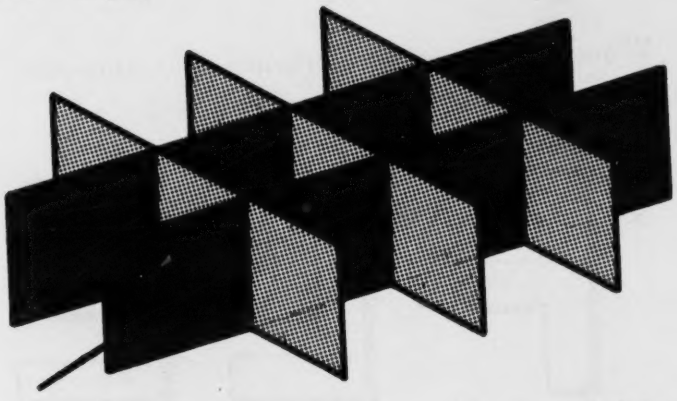


Cut cardboard strips to fit both length and width of box. Strips should be as wide as depth of box.

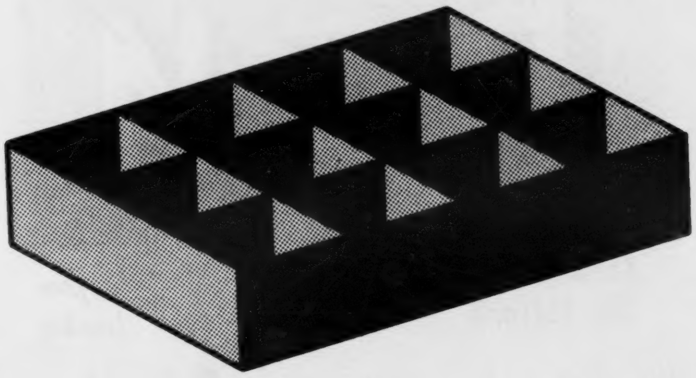
If using a shoebox, cut sides down to a maximum of 1½ inches. Keep the top as it will make a cover for your letter box.



Cut slits at regular intervals on one side of strip. Cut about halfway into strips.



Connect long and short strips at right angles to each other, so that ends of all cut slits meet.



Place the connected strips in the box to be used. The strips can be fastened with either glue or tape.

PLANNING LAYOUT FOR VISUAL MATERIALS

When planning layout of any display material (posters, bulletin boards, exhibits, etc.), you should consider the following:

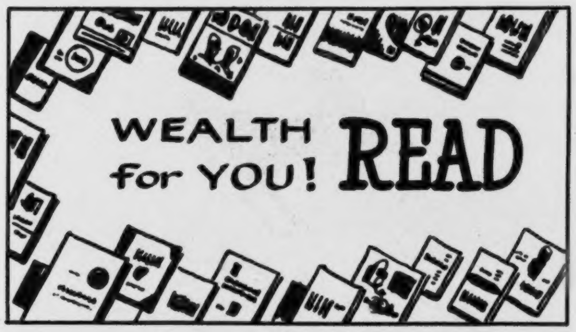
What type of material can be most effectively used?

What combinations of material will complement each other?

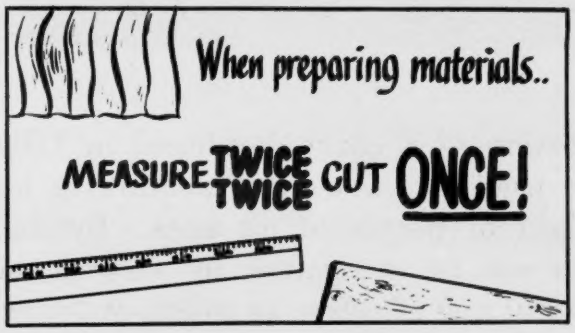
Is the layout simple, yet meaningful, and can it reach the viewer?

Is the material timely?

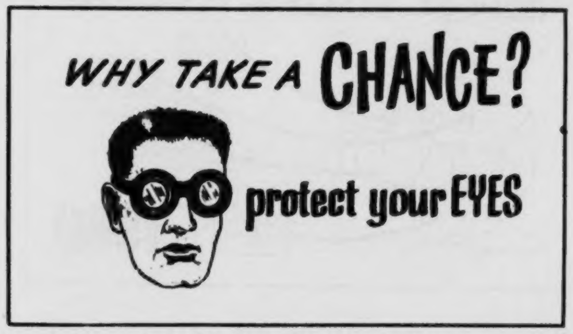
The following examples may give you some ideas for future use:


WEALTH for YOU! READ

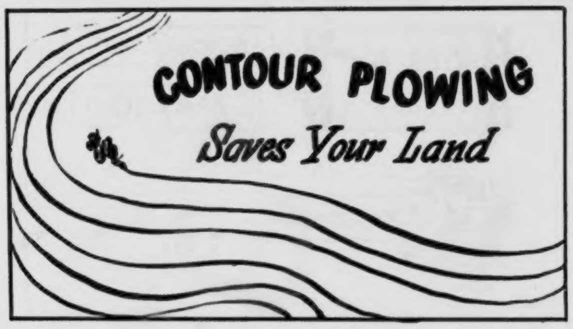
For books, you can cut out colored paper or use book jackets.


When preparing materials..
MEASURE TWICE TWICE CUT ONCE!

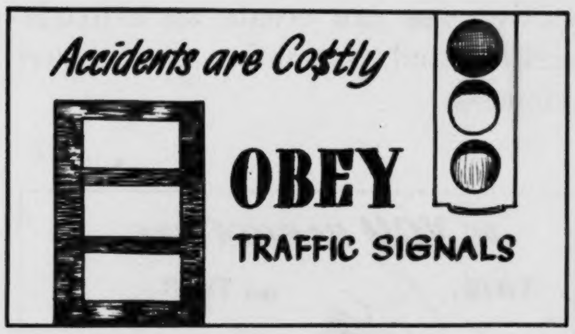
Cloth, plywood, or drawings can be used to show types of materials.


WHY TAKE A CHANCE?
protect your EYES

Safety posters like this serve as good reminders. Sketched faces, cutouts or photographs can be employed.

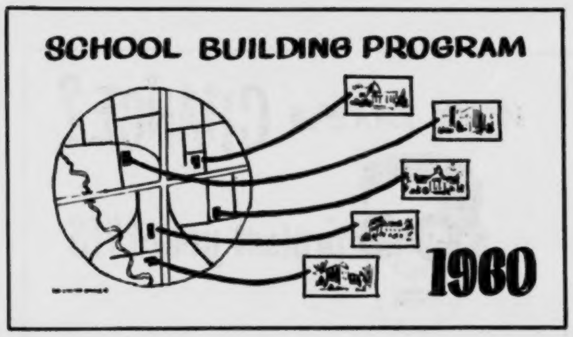

CONTOUR PLOWING
Saves Your Land

Dark and light brown paper placed in alternate strips could be made to represent furrows. Drawings or photographs could be used for the figures.

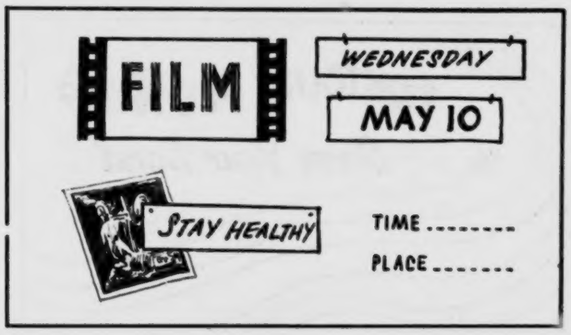

Accidents are Co$tly
OBEY
TRAFFIC SIGNALS

Photographs are always appealing. Make them relate directly to the theme of the display.

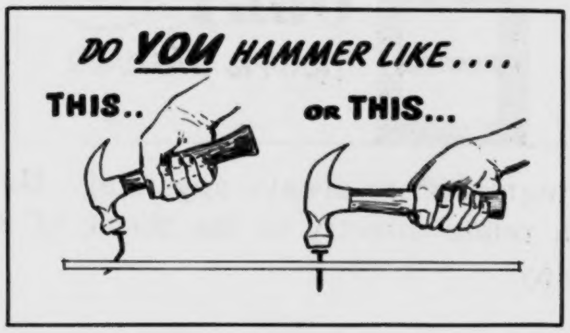
Remember that simplicity in ideas and layout, with a little imagination can often result in an attractive and meaningful visual.


SCHOOL BUILDING PROGRAM
1960

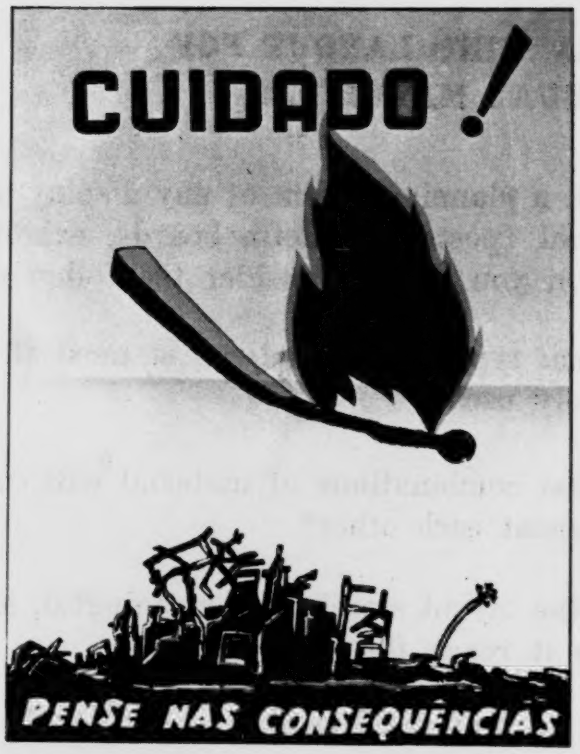
Cutouts of maps can be effectively utilized. Ribbons fastened from points on the map to photographs are eyecatching and attractive.


FILM
WEDNESDAY
MAY 10
STAY HEALTHY
TIME ....
PLACE ......

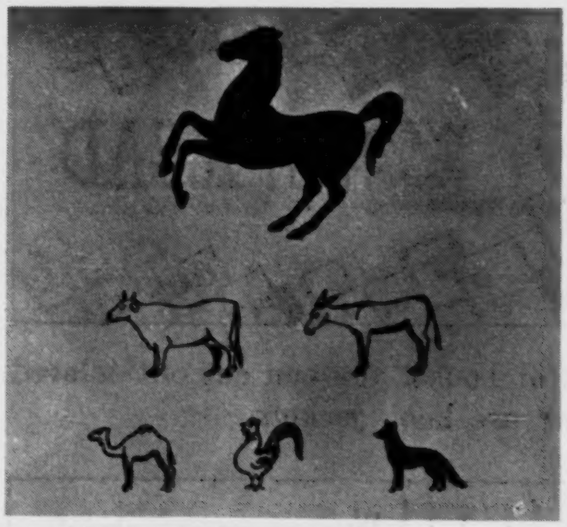
Bulletinboards or posters giving notice of filmshowings, demonstrations, or meetings can be made so that they may be used several times by merely replacing dates, titles or other pertinent information. Repetitive use can create an attitude of recognition and association on the part of the viewers.


DO YOU HAMMER LIKE....
THIS..
OR THIS...

Often the "right-and-wrong" of doing things will help the viewer to retain the ideas you want him to remember.


CUIDADO!
PENSE NAS CONSEQUENCIAS

Notice how cause and effect have been combined in this poster, to get a single idea across . . . that fire is a dangerous thing.



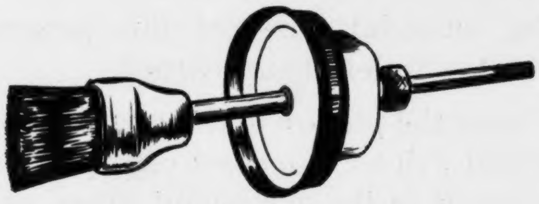
A portion of a chart developed in Libya to be used by nurses and doctors to test eyesight of people of all ages. Symbols which can be recognized by viewers are as useful and effective as words or letters.

MOUNTING MATERIALS WITH RUBBER CEMENT

You may have certain flat materials which you want to use for demonstrations, display, or filing. These same materials may be handled by great numbers of people. To assure long use of photographs, drawings, charts, newspaper materials, and other flat visuals, it is best to mount them. One such way is mounting with rubber cement on a stiff backing material.

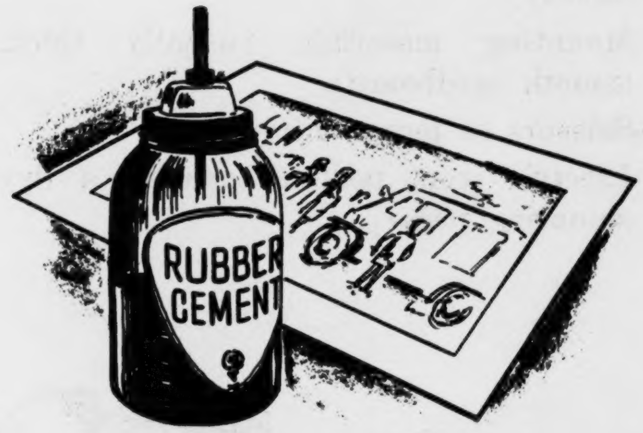
Materials needed for this process are few and are usually easy to get. They are:

scissors
ruler
sharp pencil
eraser
rubber cement
bristol or poster board



Proceed as follows:

1. Cut the material to be mounted to desired size.
2. Place the material in position on the mounting board. If the material tends to curl, be sure it is flat before making the corner marks.
3. Now place the material face down on an old newspaper or magazine and brush cement on smoothly over the complete back of the material. Do not let cement get on front of the material as it may damage or even ruin it.
4. Next, brush rubber cement on the area of the mounting board which the material will cover.
5. After the cement has started to dry on both the material and the mounting board, place the material face up, in position on the board.
6. Place a clean piece of paper over the material and smooth all the area over the material firmly with your hand.
7. Corner marks can be erased and rubber cement found along the edges of the mounted material can be rubbed away with the fingers.



For your information:

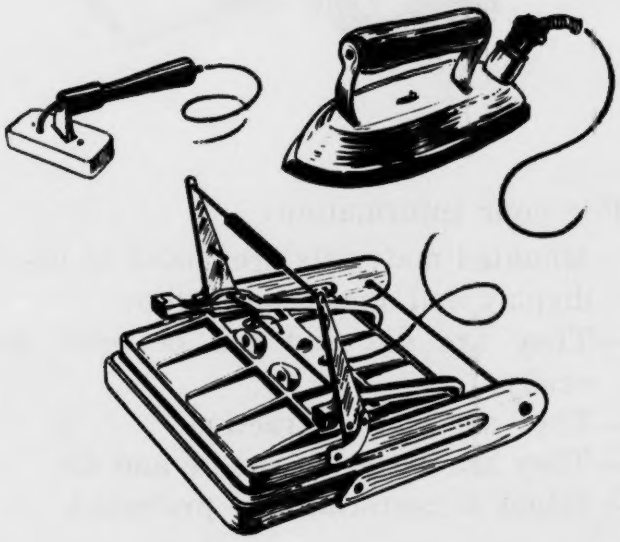
—Mounted materials are easier to use for display and opaque projection
—They are flat and can be seen more easily
—They are more attractive
—They are easier to handle and file
—Edges of materials are protected

NOTE: For temporary mounting, put cement only on the material to be mounted.

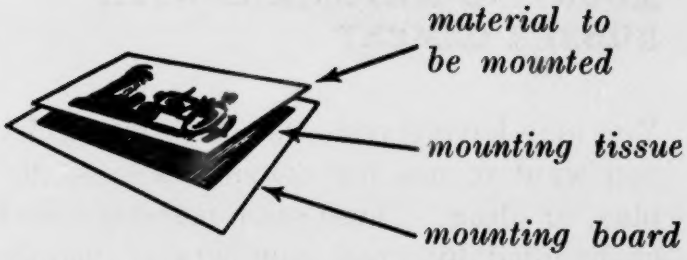
DRY MOUNTING PROCESS

The dry mounting of photographs, drawings, charts and other flat materials is a clean and rapid process, if you have electricity, certain materials and tools to work with. The mounting tissue used is covered on both sides with shellac. When the tissue is placed between two pieces of paper material, and heat is applied under pressure, the shellac melts, adhering the pieces of paper together.

Materials needed in this process are
—Dry mounting tissue (can be purchased in various sizes at most photographic stores)
—Mounting materials (usually thick, smooth cardboard).
—Scissors or paper cutter
—Electric iron, tacking iron or a dry mounting press



Flatirons, heated over fire, can also be used for adhering your material to the mount with tissue.



The procedure is very simple for dry mounting:

1. Fasten a sheet of mounting tissue on the back of the material to be mounted with tacking iron or electric iron. The tissue should be fastened in the center, to permit cutting around the edges of the material.
2. Cut the picture with the attached tissue to the desired size.
3. Place the picture face up in position on the mounting material.
4. Lift the upper right hand corner of the picture, and tack the tissue to the mounting material. Repeat this process at the lower left hand corner.
5. Cover the picture and the mounting material wth a clean sheet of paper. Either place it in the dry mount press, or iron with an electric iron for approximately 10 seconds, moving the iron over all the surface of the material.

Suggestions for you:

Store dry mounting tissue in a cool dry place to keep it usable.

If tissue does not adhere to the mounting board, the iron is not hot enough.

If tissue does not adhere to the material, the iron may be too hot.

Practice and experience will solve your mounting problems.

WET MOUNTING PROCESS

There are certain kinds of flat materials which you can use often and which you need to carry with you from place to place. One way in which you can protect these materials and make them usable for a longer period of time is by adhering or backing them with cloth. Maps, charts, sketches, blueprints and similar materials when properly backed with cloth can then be easily rolled, carried or stored.

Materials needed for the wet mounting process are usually available. They consist of the following items:

—Wheat flour paste. The flour should be kept in a jar with a perforated top, so that it can be sprinkled into the water as you make the paste. This makes the flour easy to handle and prevents lumps of flour from falling into the water.

—Dishpan, chemical tray or similar pan is needed for mixing the paste.

—Paint brush for mixing and applying paste. Should be at least a 3″ brush.

—Unbleached muslin, old flour or sugar sacks make good backing material.

—Thumb tacks, carpet tacks or good grade of adhesive tape can be used to fasten the cloth to the flat surface.

—A wooden or plastic rolling pin or similar smooth cylinder will be needed to roll the material flat on the cloth.

—Pail, pot or tub to soak the material to be mounted.

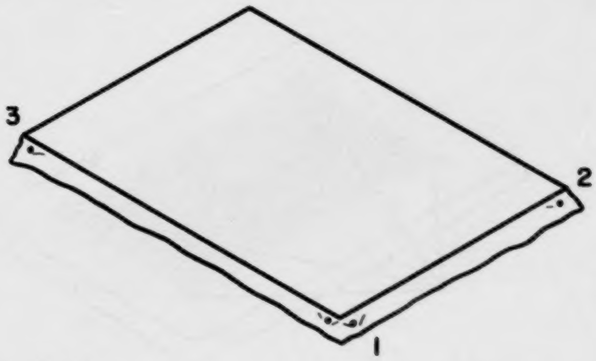
—Sponge or cloth to be used in wetting the back of the material.

—A smooth, flat surface on which to stretch the cloth, and fasten it.

Now you are ready to wet-mount the material.

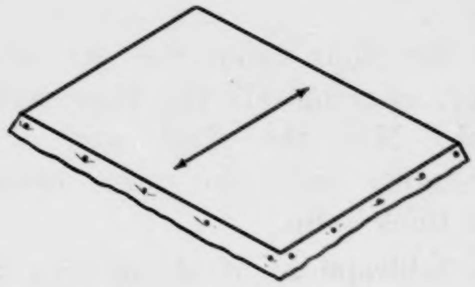
Prepare the cloth for backing.

1. Be sure the cloth is cut slightly larger than the material to be mounted.
2. Soak the cloth in water. Be sure that all of the cloth is wet. Then twist the cloth to remove excess water.
3. Stretch the wet cloth evenly on the flat surface. Smooth it across the surface so that there are no wrinkles or air pockets between the cloth and the surface.
4. Fasten one corner, then stretch the cloth firmly and fasten the two adjoining corners.



pull cloth tight before tacking 2 and 3

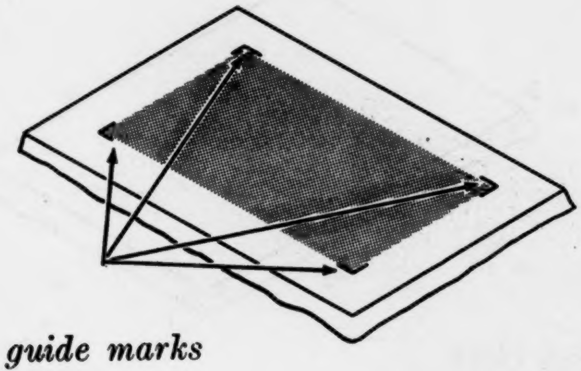
5. Fill in the thumb tacks every 10-15 cm. apart. Start by placing a tack in the center of each side. Each time a tack is placed, place another tack on the opposite side.



After you have tacked one point you should tack on the opposite side to keep cloth stiff.

Now divide the distance between tacks in half until all spaces are filled in and the cloth is firmly fastened to the surface.

6. Look carefully for wrinkles or air pockets. If you find them, they can be removed by taking out tacks, pulling the cloth tighter, and tacking again.
7. Place the material to be mounted on the cloth surface and make corner marks with a pencil to show the area the material will cover on the cloth.



place guide marks on all corners

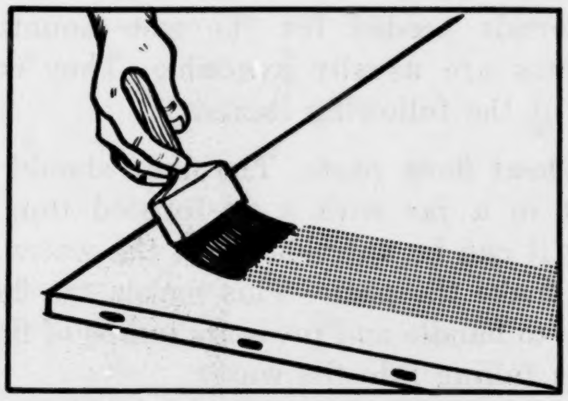
NOTE: The cloth you decide to use may be dyed or may be used in its original color.

Prepare the paste

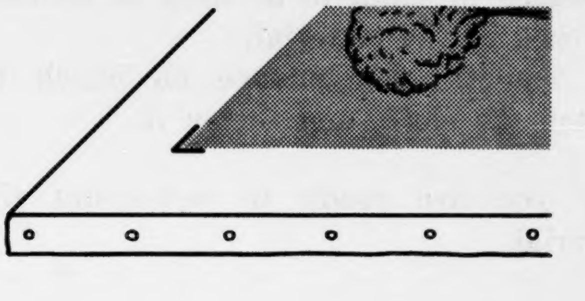
1. Pour about ¾ cup of water into the pan.
2. Sift the flour from the jar into the water, stirring all the time with the brush. Mix the flour and water thoroughly until the paste looks like very thick soup.
3. Two tablespoons of sizing may be put into the paste if the material being mounted is a hard-finish surface. This makes the material adhere to the cloth better.

Prepare the material for mounting

1. If materials to be mounted have colors which may come off when the material is dampened, then the material should be sprayed with either wall paper lacquer or plastic spray.
2. Place the material to be mounted face down on a clean surface. Using a sponge or cloth, wet the back, until it is completely soaked.

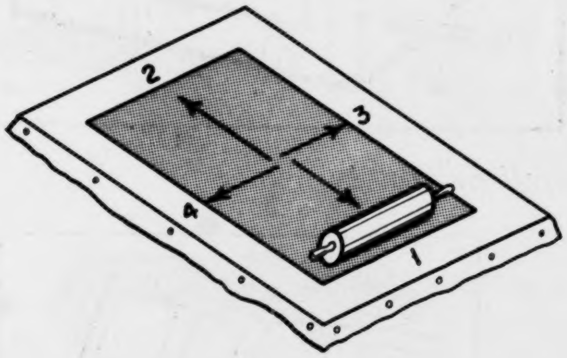


3. Brush the paste all over the area on the cloth which the material is to cover. Be sure the paste is applied evenly. You may want to use a piece of cardboard to smooth the paste on the cloth or to remove any excess paste.
4. Go back to the material to be mounted. Stretch it smooth and wipe off excess water.
5. Place the material with printed side up on the cloth, using the corner marks as guides. Try to keep paste off the printed surface.

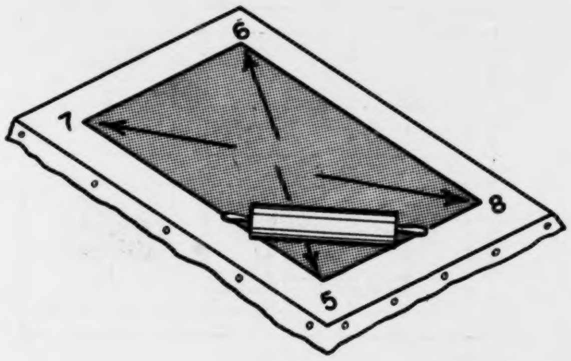


Adhering the material to the cloth.

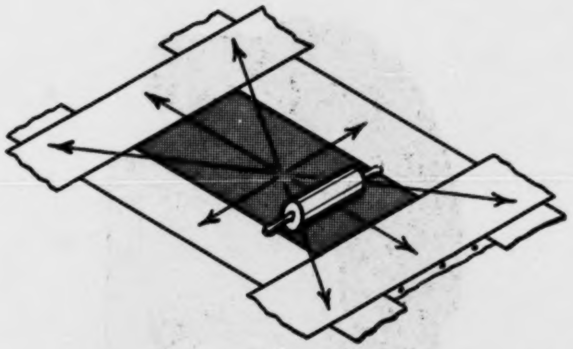
1. A set pattern in rolling will keep the material from being stretched out of shape and will remove air pockets between the material and the cloth.



2. Roll from the center of the material to the margin opposite you. ***Do not go over the margin, at any time yet,*** or you will get paste on your roller.



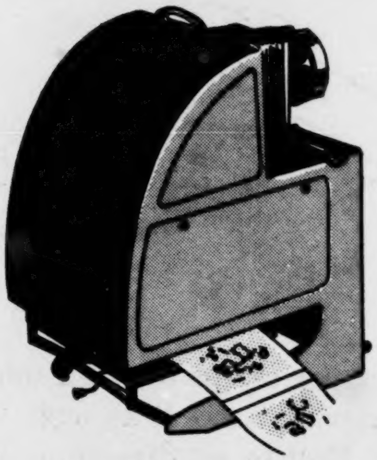
3. Now roll from the center to the margin nearest you. Continue rolling next to the left or right margins.
4. Lift the corners of the material to keep material from stretching because of rolling.
5. Roll from the center to each corner. After you have finished rolling all corners, the most of your material is smoothly mounted.



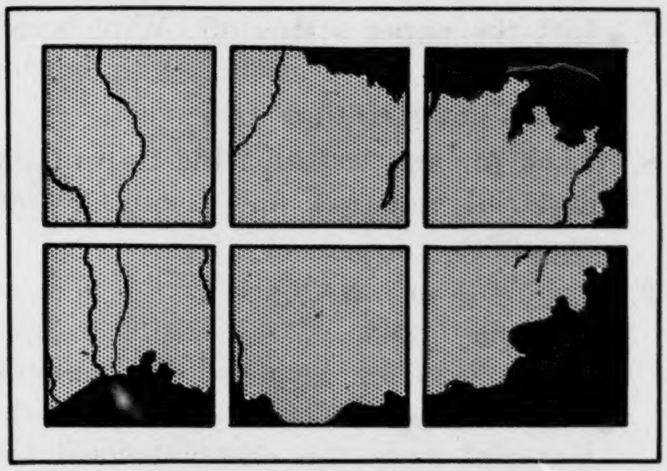
6. Place paper strips over all margins of the material, as well as over the cloth border. Roll in all directions from the center as you did before, but this time, roll to the edge of the paper, covering the margins.
7. Lift the paper strips off. Wipe away any excess paste on the cloth border with a damp cloth.
8. Look for any paste on the face of the material mounted, and remove it immediately.
9. Look for any wrinkles or air pockets you may have missed while rolling. These may be removed by rubbing your hands on the surface of the material from the center toward the margin. Care should be taken when rubbing your hands on the material, because it is still wet and may easily tear.
10. Allow the material to dry thoroughly before you remove it from the surface on which you mounted it.
11. Now remove the tacks, and trim the excess cloth from the edges of the material.

NOTE: You may either leave a cloth border, or you may want to cut right to the edge of the material.

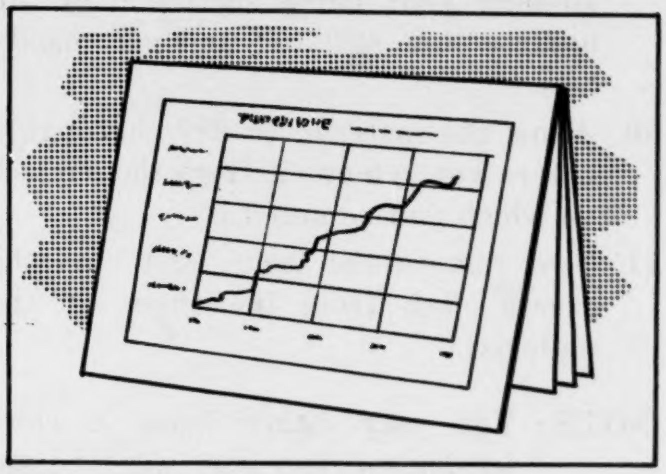
SUGGESTED MATERIALS WHICH CAN BE PREPARED BY THE WET MOUNTING PROCESS



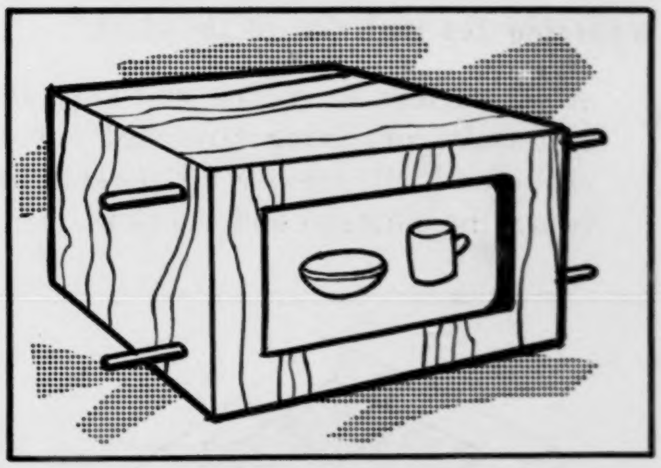
materials for opaque projector



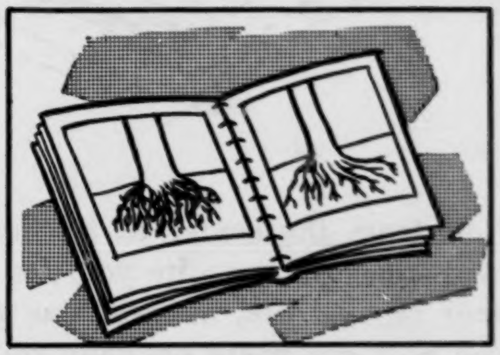
sectioned maps



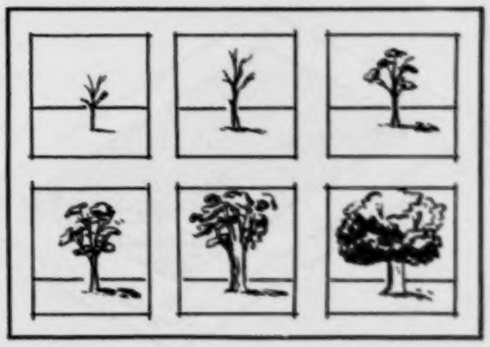
turnover charts or maps



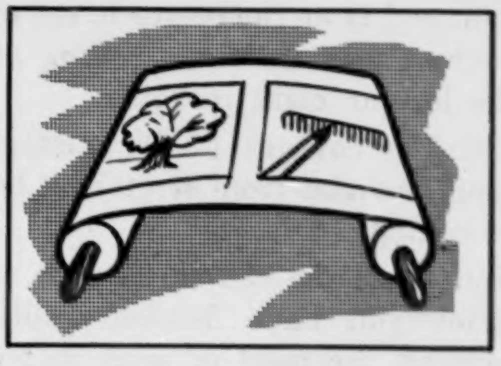
scroll or 'tv' box



photographs or drawings in booklets



picture collections



picture stories with scrolls

YOU CAN MAKE A BLACKBOARD

Portable blackboards are especially useful for field demonstrations because of their compactness and ease in handling. Below are three kinds of portable blackboards that can be made.

Cut a rectangle of good oilcloth to the desired size. Roughen the glossy surface with a medium grade sandpaper. Apply a coat of blackboard paint or flat black or green paint and let dry thoroughly. Then add a second coat.

A thick piece of cotton cloth may be used. Paint one side with a thin coat of carpenter's glue. After the glue is dry, apply two coats of paint to the glued side. Be sure the first coat of paint is dry before applying a second one.

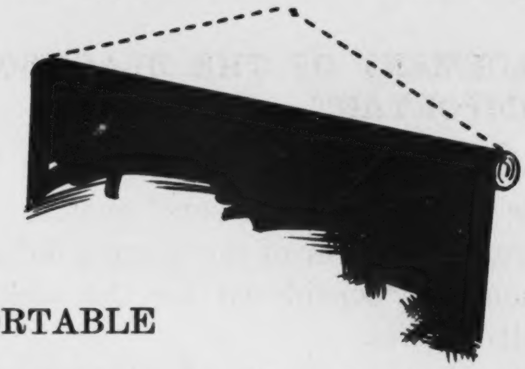
Curtains which are in good condition may be utilized as blackboards. Again, apply two coats of paint, letting the first coat dry thoroughly.

Next, fasten a cylindrical wooden rod to one of the long sides of the blackboard. The rod should not exceed one inch diameter and should not project beyond the edges of the material. Connect both ends of the rod with a piece of twine so that the blackboard can be hung. Finally, in rolling up the board, roll it over with the painted side on the inside.

Stiff blackboards can be made from linoleum, plywood, masonite or similar materials. Whether the surface is shiny as with linoleum or rough as it might be with plywood, it should be sanded carefully to an even roughness. Flat green or black paint, or blackboard paint should be applied in two separate coatings. Just be sure that first coat is dry before applying the second one.

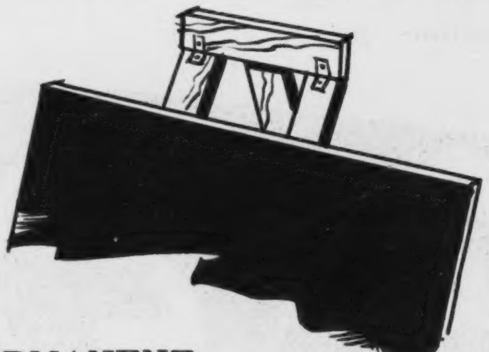
A good wooden frame around your stiff blackboard will help prevent warping, give it more permanency, and improve its looks.

BLACKBOARDS CAN BE



PORTABLE

OR

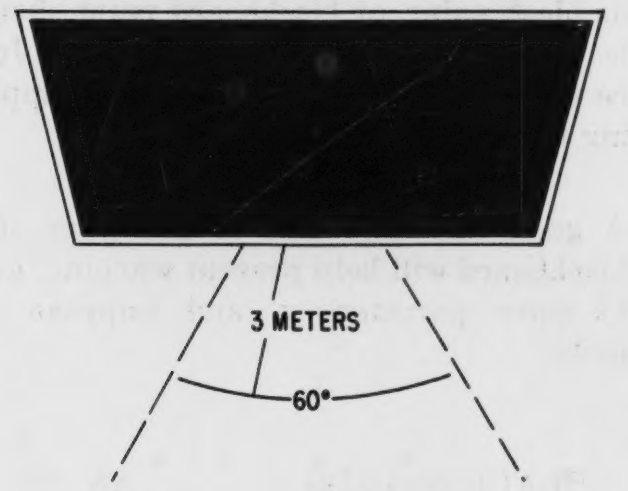


PERMANENT

AND . . .

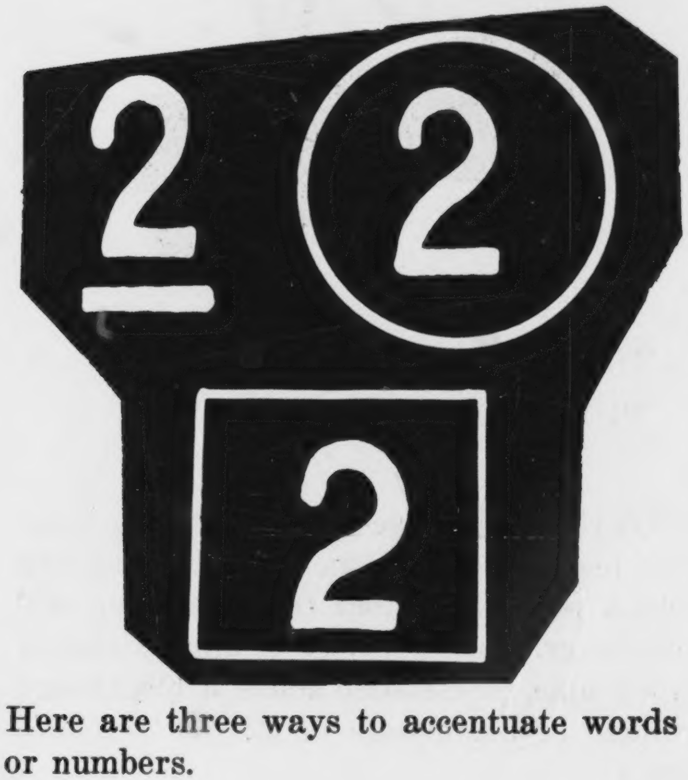
THEY ARE EASILY MADE!

NOTE: It is suggested that you go over the blackboard with an erasure containing chalk powder, so that future erasing will be easier. For audiences of approximately 15 people, you should make a blackboard which is a minimum of 22''x30'' (55x75 cm.)

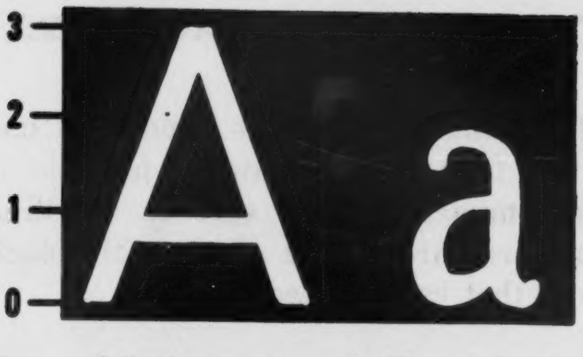


PLACEMENT OF THE BLACKBOARD IS IMPORTANT

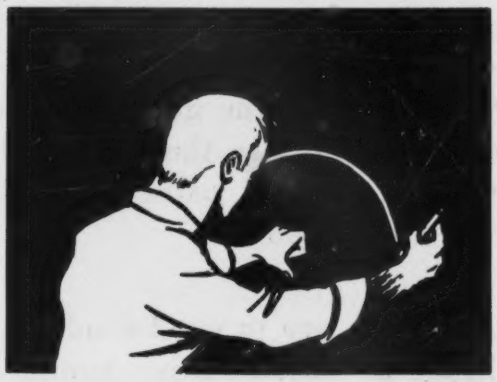
- Lower edge of the board should be at the level of the viewers' eyes.
- From the center of the board a 60° angle should be considered for the audience' setting area.
- The closest viewers should be a minimum of 3 meters (9 ft.) from the board.
- Be sure the light source does not cause reflections on the board.



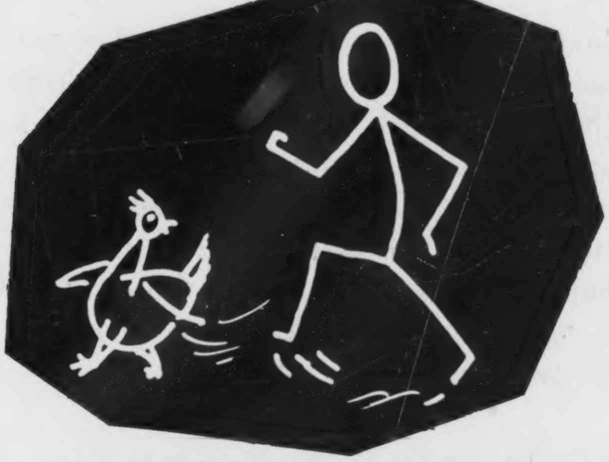
Here are three ways to accentuate words or numbers.



Sizes of letters on a chalkboard are important. A letter 3 cm. tall can be read at 10 meters. Letters 6 cm. can be read at 20 meters. Width of the letter should be at least one-seventh the height of the letter. Lower case letters should be two-thirds the height of capital letters.



Use string to draw circles or other curved lines.



Stick figures in chalk are easy to do.

(Edited from 'Make Effective Use of the Blackboard' — Inter-American Institute of Agricultural Sciences of the O.A.S.)

MAKING A CHALKBOARD

The children who are to use the chalkboard in a given room must be kept in mind as you make your plans for building it. Never should a child need to stand on tiptoe to reach the board, nor should the board be high above the eye level of the assembled group. Experience has taught that in a primary school room the chalkboard should be approximately 28 inches from the floor.

In the intermediate grades 32 inches from floor level is convenient, while in the upper grades and in high school a board 36 inches from the floor is best. It was for this last group, fast approaching mature height, that the Audio-Visual Aids Class in a Winter Workshop in Kabul, Afghanistan built the chalkboard described below in one of the classrooms at Darul-Mo-Allamein. We chose a side of the room for the chalkboard where the glare of natural light from the windows would be least. Along that wall, using a straight edge, we measured and marked off a rectangular space 4 ft. by 10 ft. running horizontally an even 36 inches above floor level. This area we framed with a narrow, neatly outlined border of hard clay, which was later painted to match the walls. In other countries where forests abound, a wooden frame ½ inch by 2 inches might be used to set off the chalkboard area with fine emphasis.

Great care was taken as we prepared the wall inside the frame to receive the prepared mixture which would later be smoothed out to serve as the writing surface. With "hammer and tongs" we chipped away part of the original mud and plaster wall to a depth of about two centimeters. This made a rough surface to which the clay mixture would adhere firmly.

Good quality natural clay, obtained everywhere locally, was first put through a sieve made of window screening. By this process, small stones, grasses and other impurities were removed. To this fine smooth clay now free of lumps we added enough water to make a mixture of paste-like consistency. Next, we added cattails (gulalock) in sufficient quantity to make a sticky binding substance. In this manner we forestalled any excessive cracking of the surface of the clay.

With a trowel, we applied the prepared mixture to the area of the wall that had been chipped out. In so doing we spread enough of the clay mixture to make the surface of the chalkboard even with the adjoining wall surfaces. During this process we were extremely careful to make the surface of the clay as smooth as possible. We learned that we could succeed in this effort by keeping the surface wet while troweling. Frequently, we dipped the trowel in water and sprinkled water on the surface of the mixture with our fingers. This smoothing of the intended writing surface is a most important part of the construction job.

After three or four days of drying, the chalkboard was ready to paint. A satisfactory black paint was made by using 1½ parts of kerosene to 1 part varnish to 1 part of lamp-black. This was applied by brush.

The audiovisual class, Teachers College Workshop, Darul-Mo-Allamein, makes a blackboard. They will instruct committees in various schools in Afghanistan how to construct blackboards economically with local materials.

AV class, Darul-Mo-Allamein watches demonstration of a diagram on a blackboard used as an effective teaching aid.

(Edited from Multiplier article "MAKING A CHALKBOARD" USOM/Afghanistan.)

CHALKBOARDS

As an "active" visual, the chalkboard offers you the opportunity to write words and draw pictures and diagrams which can greatly add to the effectiveness of your presentation.

The uses for a chalkboard are limited only by your imagination. You can summarize the main points of a talk; write down key words for emphasis; sketch diagrams of irrigation systems, farm building arrangements and crop rotations; draw pictures of people and animals to add interest to your talk; write out directions for mixing and using chemicals for controlling locusts; and develop a story or lesson point by point.

Using a chalkboard not only increases audience interest and understanding but speeds learning and gives the teacher increased poise and self confidence.

(Edited from "Using Visuals in Agricultural Extension Programs" ICA.)

NOTE: An even better chalkboard, but a more expensive one, can be made by substituting cement for clay and reinforcing it with chicken wire. In preparing the cement mixture, about 1 part of cement to 5 parts of sand to 1 part of lime should be used.

USING CHALKBOARDS EFFECTIVELY

Although it is a very simple tool, the chalkboard can be a most effective visual device. There are certain basic techniques which you can apply, to insure successful use of the board in your presentation.

Here are a few suggestions and points to remember:

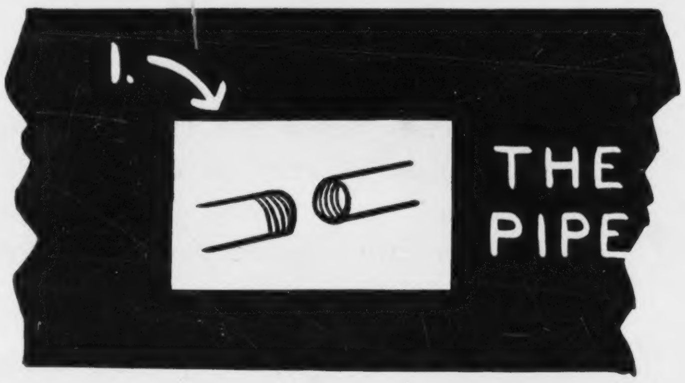
1. Be sure the blackboard is in a position where all viewers can see it and where there is sufficient light. Remember that reflections on a chalkboard make the materials hard to look at.
2. PLAN AHEAD. Practice your demonstration . . . get comments from your fellow workers or friends. First gain the confidence of your audience and proceed in your planned order.
3. Write clearly and large enough so that the viewers at the back of the group can see too. Printing of letters is preferable. To get neat, straight lines just rub chalk on a piece of string and position it on the board (someone can help you hold the string). When positioned, take hold of the center of the string, pull it back 2-3 inches and let it snap back. Chalkdust will come off the string and leave you a straight line. A straight edge can also be used.
4. You can accentuate lines by using the chalk sideways. Words or symbols can be emphasized by underlining, circling or putting them in a box.
5. Outlines of objects can be cut from cardboard or paper and outlined on the board with chalk. These materials will be useful if repeated demonstrations are required.
6. Colored chalk can also be used to point up objects or words.
7. The blackboard should be kept clean. Washing it frequently will keep it in good condition for writing or drawing.
8. If you must erase during a presentation, remember to erase from the top to the bottom of the board. This prevents chalk dust from causing discomfort to either you or your audience.
9. Be sure that there are no materials near the chalkboard which will detract from the presentation you are giving. Don't lose your audience because of unrelated objects.
10. Never talk to the audience when you are drawing or printing anything on the board. Your audience might not hear you, and besides, their attention will be on what the chalk is making.

These are a few suggestions. With a little practice you will be able to perfect and apply your own techniques in using the chalkboard to put your story across.

MORE SUGGESTIONS FOR CHALKBOARDS:

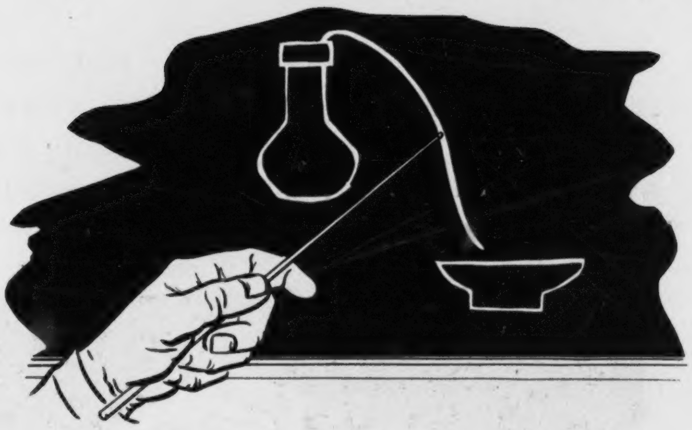
Make use of cutout objects for outlining on the chalkboard. It is best to find a piece of stiff cardboard, draw the object on it, and cut the outline. Stiff cardboard is much easier to use when you are tracing around it with chalk.

A good way to assure giving your viewers a good drawing is to prepare it in advance of the presentation. Just dot or sketch it on the chalkboard lightly and then during the presentation, you can draw it so that the viewers can see it.

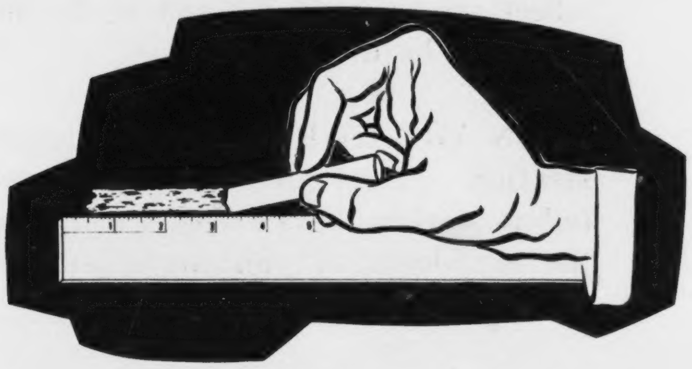


If you have an object, a word or a phrase that you want to be noticed, there is an easy way to do this. Take a piece of paper, prepare the material on it and tape it to the blackboard and build your chalk material around that.

Don't put too much material on the board at one time. If you have a large amount of material to place on the board, you can prepare some of it before the meeting and cover it with a plain sheet of paper or cloth.



You will find good use for a pointer. There are rubber-tipped pointers available commercially. However, you may use a measuring stick, the branch of a tree, or a broom handle. The pointer is useful when you have to show viewers a process which requires a flow of movement. As you point to objects drawn on the blackboard, you should stand to one side, so that all viewers can see the board.



Keep your lines straight by using measuring sticks or other straight edged materials.

AND . . . there is value in giving your viewers something to remember you and your demonstration. Simple duplicated material with illustrations or important points of your presentation are valuable tools for any demonstrator.

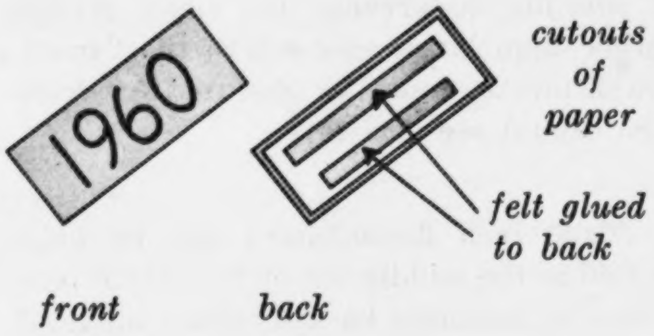
YOU CAN MAKE A FELT BOARD

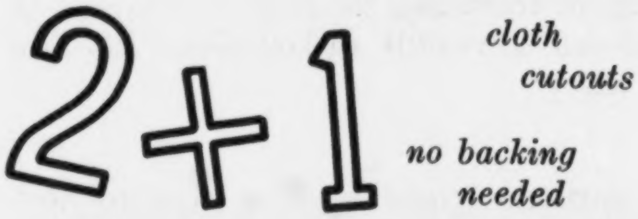
The felt board (sometimes referred to as flannel board) consists of cloth fastened to a stiff backing. The cloth must be felt, flannel, suede or cotton outing, while the backing may be a wall, wallboard, masonite, plywood or even heavy cardboard.

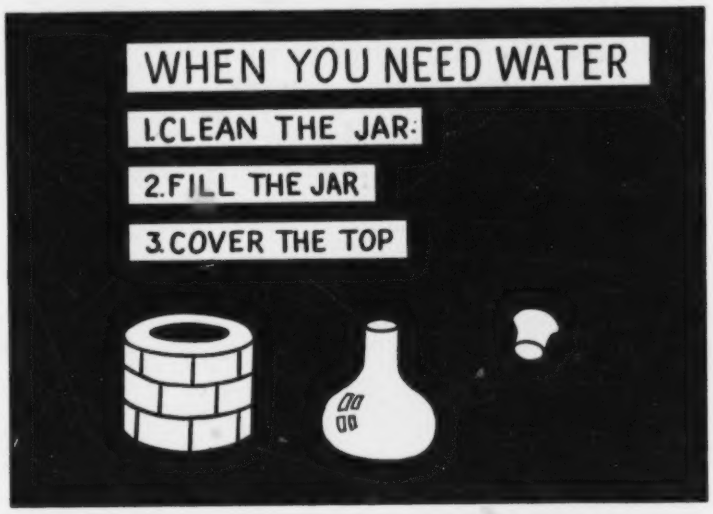
Choose colors which will make parts show up well. Size will be determined by the number of viewers you anticipate. Stretch the cloth taut across the backing and secure with tacks, staples, tape, rubber cement or glue.

Parts for the flannelgraph may be photographs, illustrations, lettered materials, construction paper, colored cellophane, blotters, balsa wood or suede, felt, cotton or flannel material. Cut out desired shapes from any of the above. Be sure cutouts are large enough to be recognized by your audience. If paper material is used, strips of felt, flannel or fine-to-medium sandpaper must be glued or pasted to the backs of parts.

When not being used as a presentation tool, the felt board can also serve as a bulletin board. By painting the back of the board with flat black or green, or blackboard paint, you can have a blackboard too.


1960
cutouts of paper
felt glued to back
front
back


2+1
cloth cutouts
no backing needed


WHEN YOU NEED WATER
1.CLEAN THE JAR
2.FILL THE JAR
3.COVER THE TOP

NOTE: Dimensions are not given here. However, a 30"x 40" board should suffice for presentation to an audience of 100 people.

SUGGESTIONS FOR FLANNELBOARDS

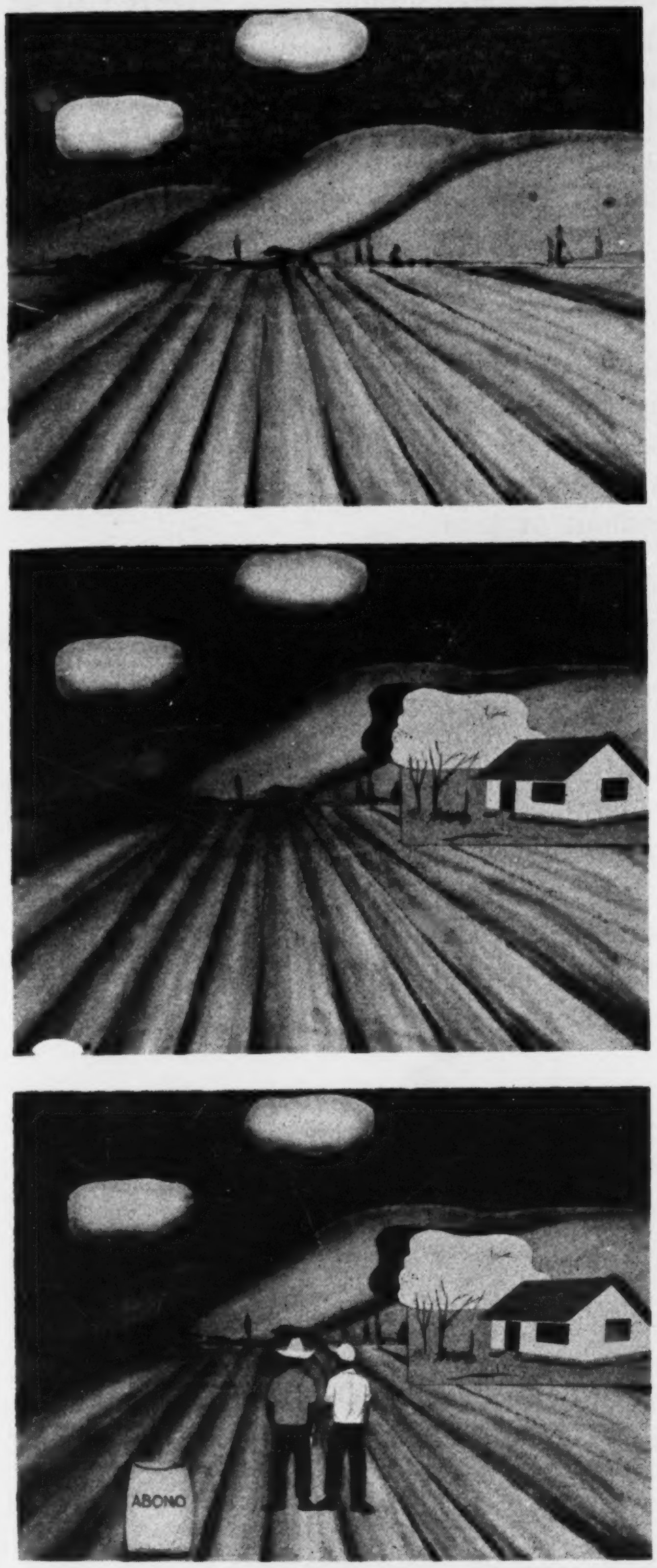
The flannelboard — background on which flannelgraphs are placed — should be a color which will not take away attention from the pictures, but will enhance or make them stand out. The board should vary in size according to the size groups before which it will be used. It is better, if possible, to arrange for small groups rather than large ones where the flannelgraph message may be obscured for some who cannot see it clearly.

A 30x40 inch flannelboard can be built to fold in the middle out of two 30x20 inch pieces of masonite backed with a hinge of canvas and covered with flannel on one side. In traveling, the flannel is turned in and can be readily tucked under the arm to carry.

A portable tripod may be used to hold the flannelboard, and this too can easily be folded up and carried. The flannelgraph pictures, filed in subject envelopes, will fit into a small briefcase. These three light pieces provide portable visual aid equipment that is of minimal cost to put together.

(Edited from Multiplier article "Suggestions for a Flannelboard," USOM/HAITI).

The use of perspective and objects in relative sizes, gives a pleasing three-dimensional effect to this flannelboard.



(Adapted from 'Using Visuals in Agriculture Extension Programs,' ICA).

HOW TO USE A FELT BOARD

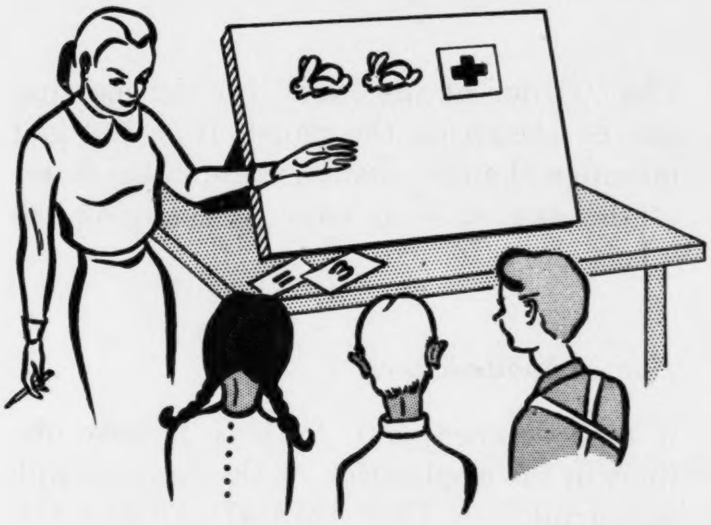
In preparing the felt board presentation, it is desirable that a detailed written guide should be developed. After the material has been developed, you should rehearse the presentation until you are certain that you can cover the material in the time allotted. Practice your lesson and make sure you have all felt board cards arranged in the proper order and placed around the board or on a near-by table so that they will be accessible with a minimum of movement.

Allow yourself at least half an hour to set the board up and arrange cards before you start the meeting. The first few cards you place on the felt board should assist you in arousing the interest of the group.

After you have aroused their interest, you then present the information in a step-by-step manner. Use your cards in a dramatic way, but make sure that each point is clearly presented to the group. In some cases, it might be wise to take an extra minute or two to clarify a point. As a result, each member of the group should be encouraged to solve the problem by applying the information in the lesson.

It may be advisable for you to allow questions during your presentation. This will help to clarify difficult points which the audience may not understand and puts your presentation on a person-to-person basis. It may even be desirable for you to review the highlights of your presentation with the felt board again.

The real proof in the effectiveness of your presentation will come when you see people doing the things which you have demonstrated.



(Adapted from a booklet "Flannelgraphs," produced in Korea in 1958. The original was written by Mr. Kim Joong Ho and Miss Lee Ok Ki, formerly of the Audio Visual Division, USOM/Korea).

SOME EXAMPLES OF THE USE OF THE FLANNELGRAPH

For Extension Agents

The meetings of rural groups are more interesting when the Agent presents his explanation with the help of the flannelgraph.

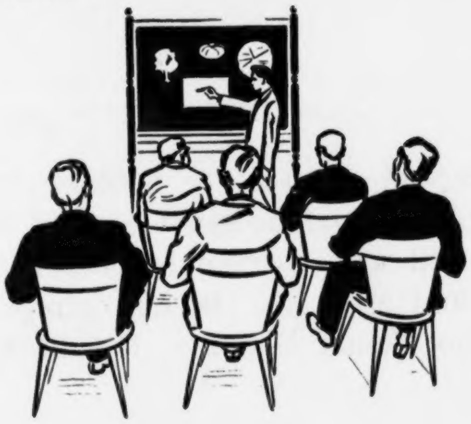
Subjects such as soil conservation, seed disinfection, cooperative organization, can be illustrated with good sequences adapted to the rural mind.

In meetings of Young Agricultural Clubs, the flannelgraph helps the boys show their friends what they have learned.

The "Order of the Day" for the meeting can be shown on the panel. If in the last minute a change must be made in the order of the day, it is as easy as changing the labels.

For Schoolteachers

A teacher once said: "There is only one limit in the application of the flannelgraph in learning — THE IMAGINATION OF THE TEACHER." This means that if the teacher is eager, the flannelgraph can be useful to him on many occasions, with surprising results.



a. Before you begin the talk, put in order your illustrations. *Always put first a figure on the panel and afterward explain it.*

b. Maintain yourself always beside the panel, so that everybody sees the figures.

c. Develop the presentation from either side, depending on language.

d. Let the public participate.

e. When you put the figures on the flannel, do a small movement down so that the sandpaper "grasps" the flannel's nap.

f. If you have many figures to show, use two panels one beside the other.

g. To connect the figures to each other, use *wool yarn.* Use arrows to call attention to interesting points.

h. Once you have thought over the story of your presentation, prepare small sketches on pieces of paper. Use illustrations which tell your story. This way you will have a UNITED IDEA before you make the definitive drawings.

i. Use an agreeable illustration as the end of your talk. One which says for example: "And no more for today. Thanks a lot", or something like that.

(Adaptation from Audio-visual Series Booklet No. 3, prepared by Gustavo Gatti, and revised by Juan E. Diaz Bordenave, Audio-visual Center, USOM/Paraguay, 1956. The original booklet was illustrated by Tomas Borja.)

YOU CAN MAKE A BULLETIN BOARD

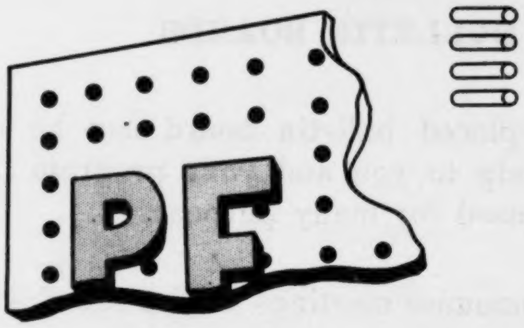
Many kinds of bulletin boards may be used to meet your needs. Determine the limitations of space and location and then decide if you need a fixed, folding, movable or suspended board.

Bulletin boards may be made of any soft material. Softwood, beaverboard, celotex, composition board, plywood, linoleum, backs of old blotting pads or heavy bristol board are some suggested materials. Cut the material to the desired size, and punch holes on either side of the top so that the board can be hung.

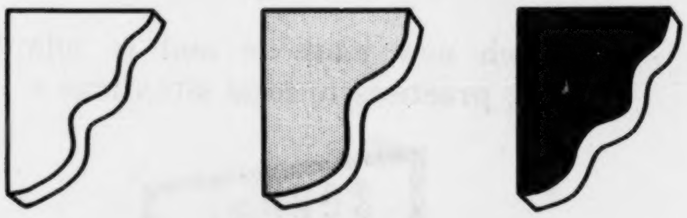
For background of the board you may want to leave it in its original color, or you may wish to paint it, or you might decide to cover it with cloth. If you paint the board, remember that the background color should make the materials placed on the board stand out in contrast. Cloth covering can be burlap, denim, felt, flannel or monk's cloth. Framing the bulletin board with colored tape, wooden framing, or glued colored paper will make it more attractive.

A recent addition to the bulletin board family is the peg board. Materials needed for the peg board consist of heavy composition board with holes punched all over it, and small wooden pegs. This makes possible the display of three-dimensional objects.

Metal hooks are also available for hanging objects from peg boards.

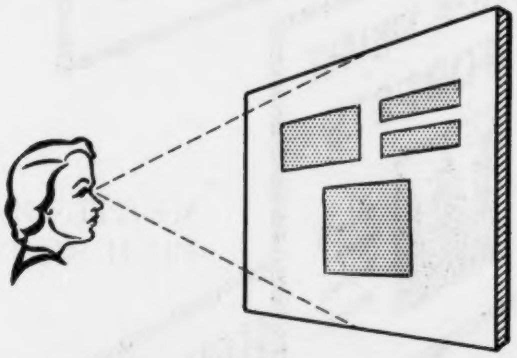


peg board for three-dimensional effects



original *cloth* *painted*

Surfaces can be prepared to meet needs, wihin limitations of available materials.



Placement of bulletin boards are as important as what you put on them. Hang the board eye-level to your audience.

NOTE: A felt board may double for you as a bulletin board when it is not being used, or if you have a portable blackboard, the back of that may be covered with material for bulletin board use also.

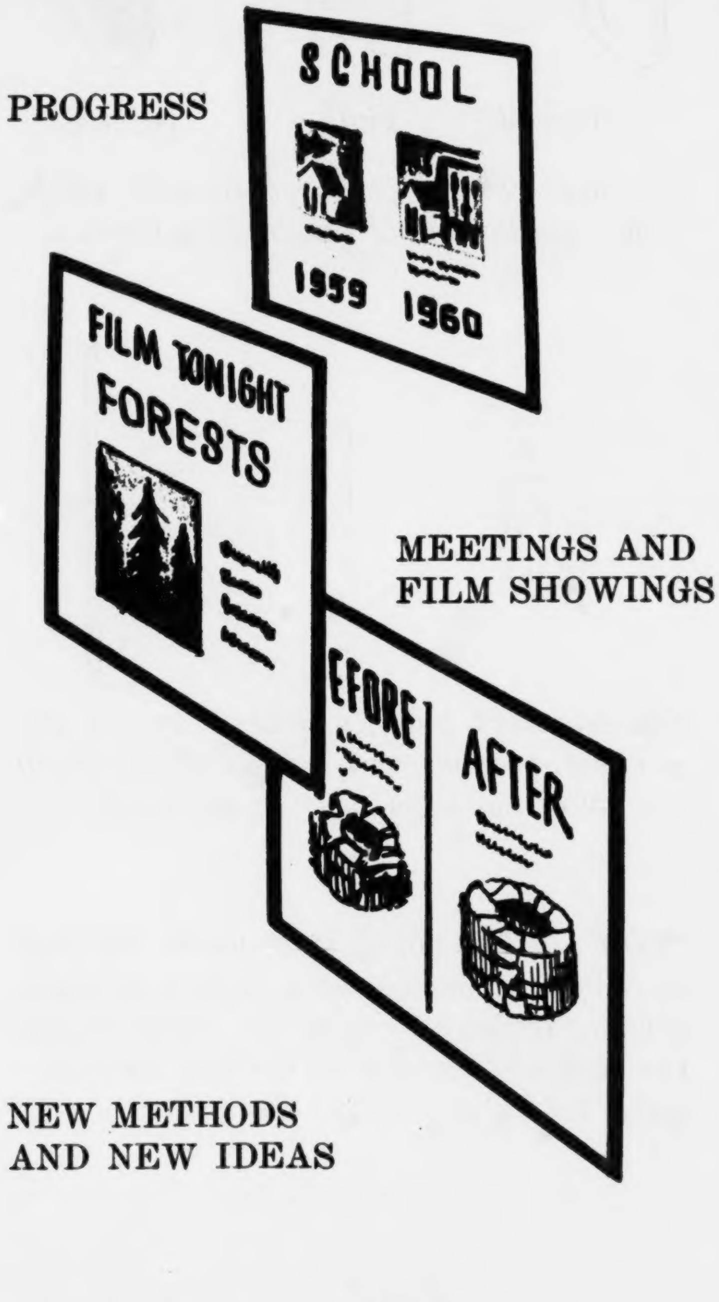
USING BULLETIN BOARDS

A well-placed bulletin board can be of great help to you and your program. It can be used for many purposes:

—To announce meetings or film showings

—To keep people interested in the progress of your program

—To teach new methods and to adapt existing practices to local situations



All these purposes may be served by the use of

photographs

drawings

posters

notices

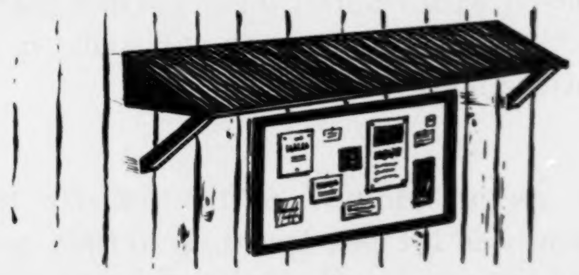
publications

wall newspapers

With these, you should use simple, but meaningful captions, printed carefully, and placed near the materials which they relate to.

Here are a few rules for you to follow when you prepare a bulletin board:

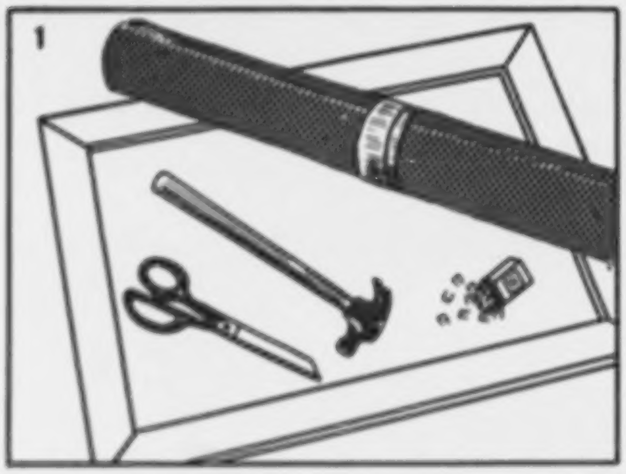
—Make your layout simple and attractive. Place the materials in various positions and choose the one you think best.
—Don't overload your bulletin board . . . keep to related ideas and one theme.
—Use neutral color for your background.
—Use bright colors for materials or words which you want to be made important.
—Make the lettering simple, with words easy to understand.
—Change the material often and keep the information timely.



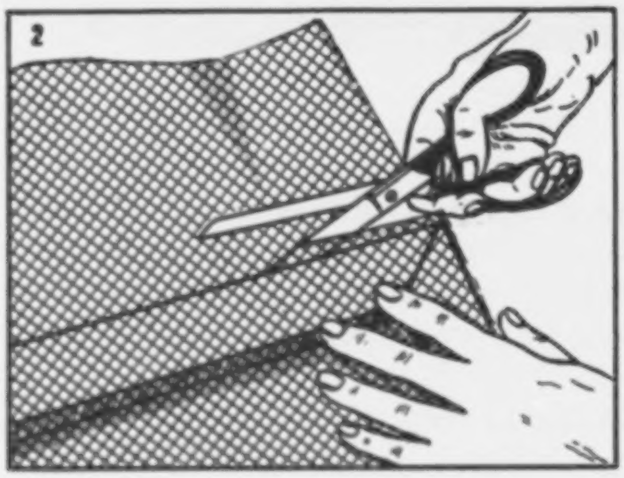
If your bulletin board is to be placed outside, it will be exposed to weather conditions. Therefore, it should be placed underneath an overhanging roof. If no roof of this kind is available, you may be able to build a temporary shelter for it, or even build a frame with a glass front to protect the material.

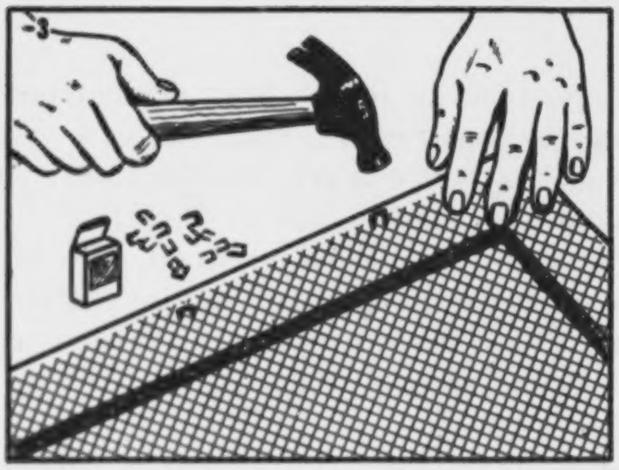
YOU CAN MAKE A SCREEN MAGNETIC BOARD

The screen type magnetic board is light, inexpensive and can be made with a few materials and tools by anyone. An ordinary large picture frame, a piece of galvanized steel fly screen cut to fit the frame, some staples or carpet tacks and a half dozen small magnets comprise all the necessary materials. The magnets can be purchased in a variety of sizes and colors.

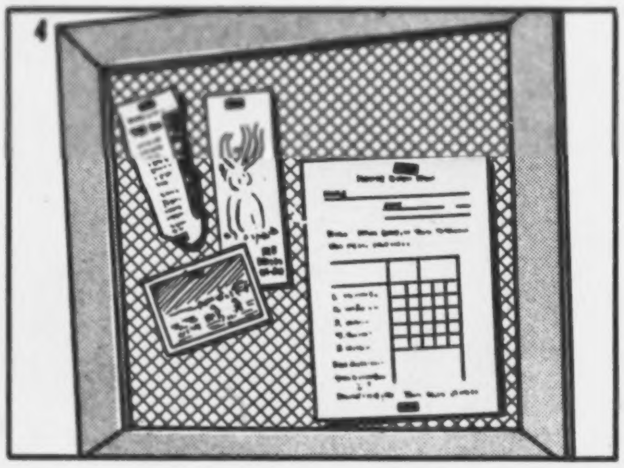


The frame is placed face down on a table or floor and the screen is stretched over it and stapled or tacked along the edges. This completes the construction work. The frame may be painted, but it is unnecessary to paint the wire screen since wall colors will show through.





Completed frames may be hung over classroom walls, blackboards or conventional bulletin boards. In some instances, the frames can be used in school administrative offices as partitions between desks. They not only serve as bulletin boards, but permit the passage of light and air as well.



The magnets can be glued at intervals on a neutral or gaily colored string, one end of which is secured to the frame of the magnetic board.

(Adapted from Teaching Tools, the Manual of Classroom Tested Techniques.)

MAGNETBOARDS

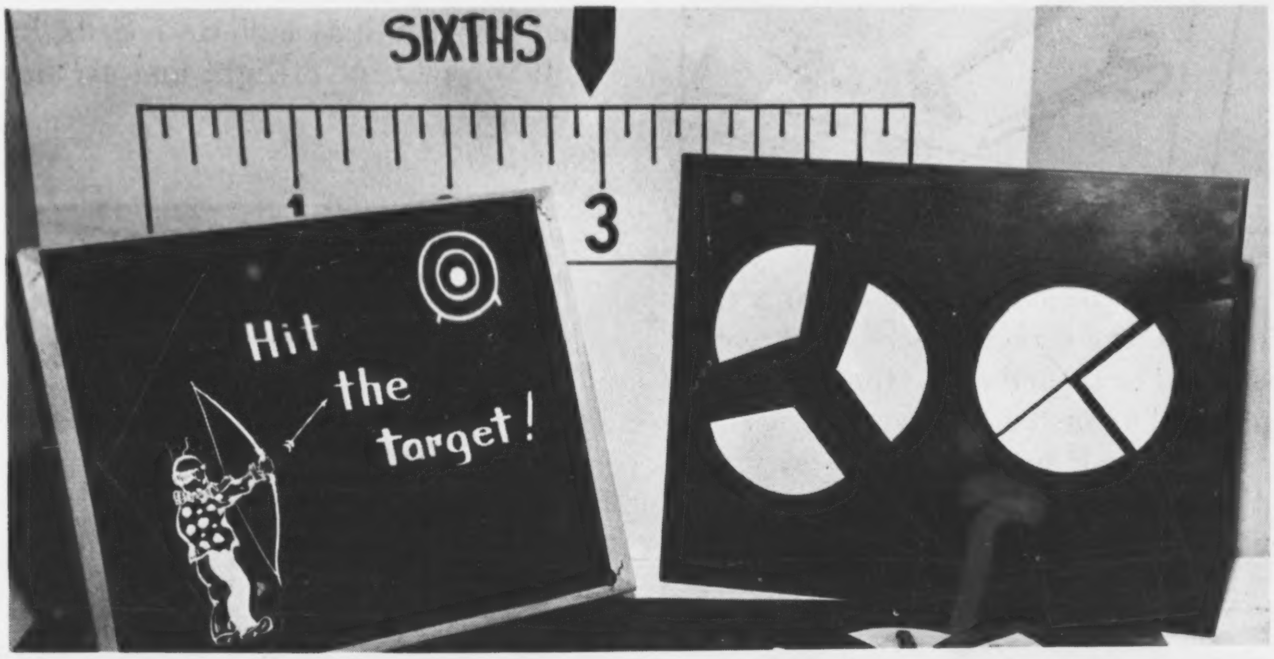
Magnetboards differ from flannelboards, only in construction. Their use as a visual teaching device is very similar to the flannelgraph. The size also is similar.

Instead of cardboard, plywood, or pressed wood backing however, the magnetboard must have a sheet iron backing to attract the small magnets that are used to hold up the parts.

Since paint does not interfere with the magnetic attraction, you may paint your board to provide contrast between the background and the parts and to avoid rust damage. The paint most commonly used is chalkboard slating, and the board therefore can double as a magnetboard and chalkboard.

Twenty-eight gauge sheet iron usually is used for the backing. This is light enough to carry yet durable enough to stand the wear that visual equipment gets in normal use. Galvanized iron window screen also works farly well if it is properly framed to make it rigid.

Small magnets are glued, taped or fastened with wax to the backs of the parts. When the parts are placed on the surface of the board, the attraction between the magnets and the metal of the board holds the parts in place. Wind will not blow the parts from the board.

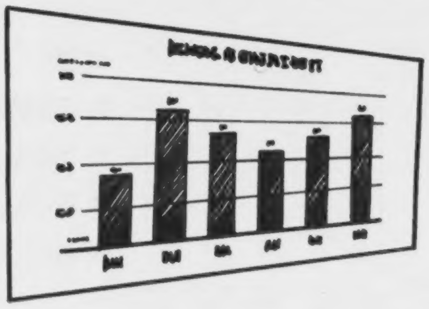


Three examples of magnetic boards which were used in teaching by television. The black arrow is movable and is used with the measuring diagram. The white arrow in the lower left board can be moved to the target. A magnet on the back of the boards holds each of the arrows in place. As the magnet at the back is slid around the board, the arrows will move correspondingly. The metal board at the lower right holds the parts of the circles to the board and in front of the board are some sectioned parts with magnets fastened to them.

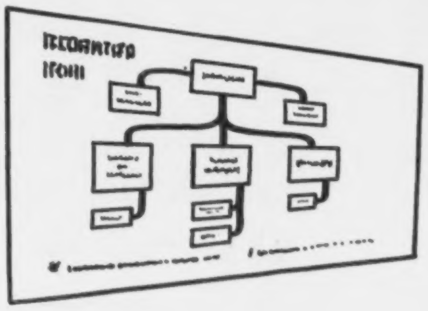
(Adapted from ICA's "Using Visuals In Agricultural Extension Programs").

YOU CAN MAKE A CHART

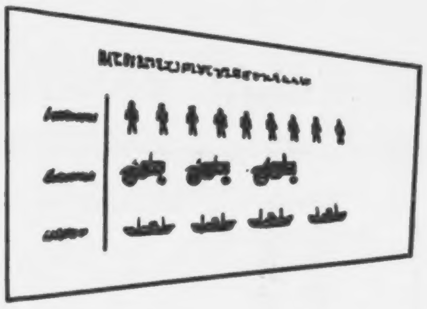
Charts and graphs are pictures of relationships and changes. They can help you show or compare changes that have occurred. There are several kinds of charts.



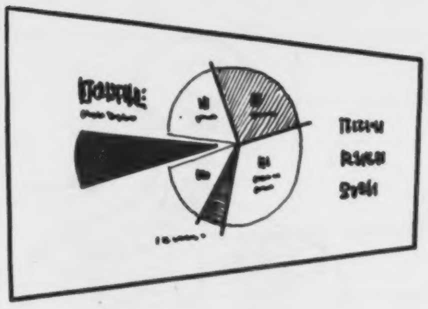
Bar charts are made of a series of blocks along a measured scale and can be used for comparison or of a project or specific activity.



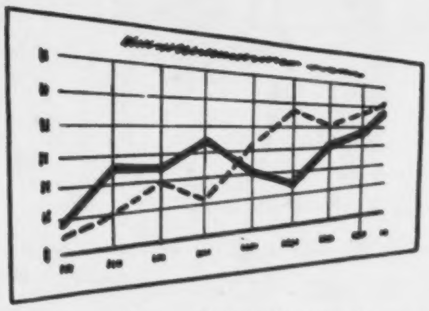
Organization charts can illustrate organizational and administrative relationships. Lines connected to boxes can show levels of authority.



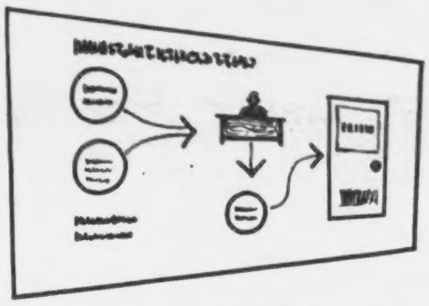
Pictorial graphs can be used to get a clear picture of the message by use of drawings or symbols representing the subject. The symbols may indicate quantities shown in comparing numbers of items at given points in time.



Pie charts are used to show how several parts make up the whole. Useful for showing budgetary proportion, percentage breakdowns, etc.



Line charts can be utilized to show trends and relationships, growth or expansion.

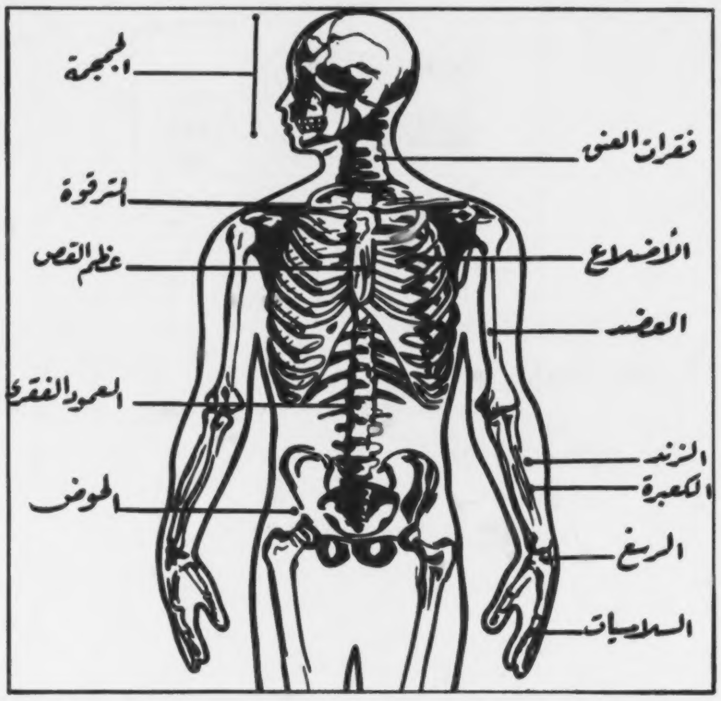


Flow charts help to explain sequence in time or a process of doing something.

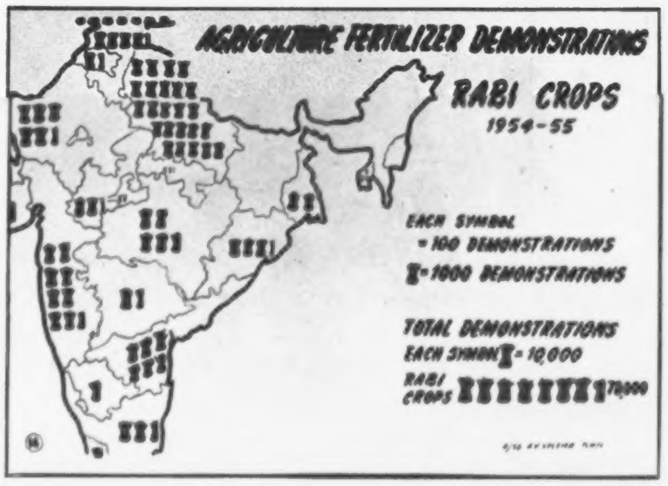
Here are some suggestions regarding preparation of charts:

1. Keep them simple by using one idea.
2. Don't use too much data.
3. Use large sheets of paper and allow plenty of space.
4. Use symbols, words or color to explain the chart. Make it attractive.
5. Use lines and bars in only one proportion.
6. Compare like units and avoid confusion to the viewer.

Here are some examples of effective charts:

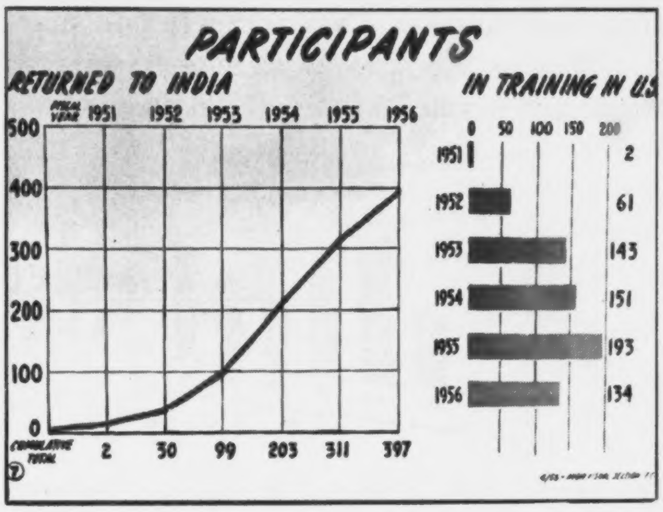

الجمجمة
فقرات العنق
الترقوة
الأضلاع
عظم القص
العضد
العمود الفقري
الزند
الحوض
الكعبرة
الرسغ
السلاميات

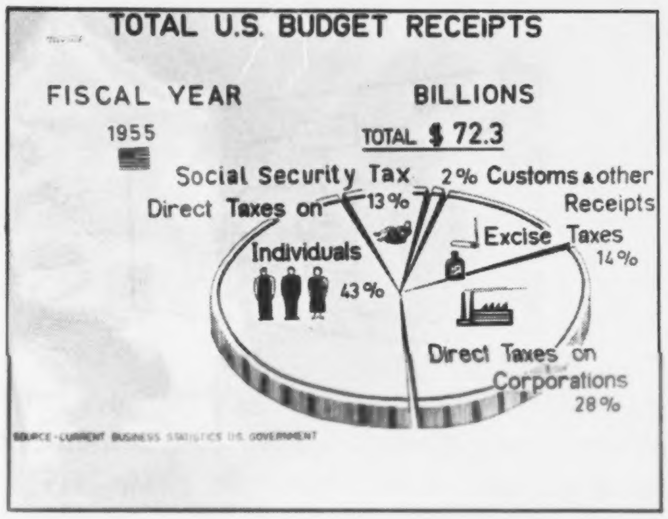
This portion of a silk screen chart shows how charts can explain parts of a whole object. The drawing is simple and realistic and only the necessary words and phrases were used.

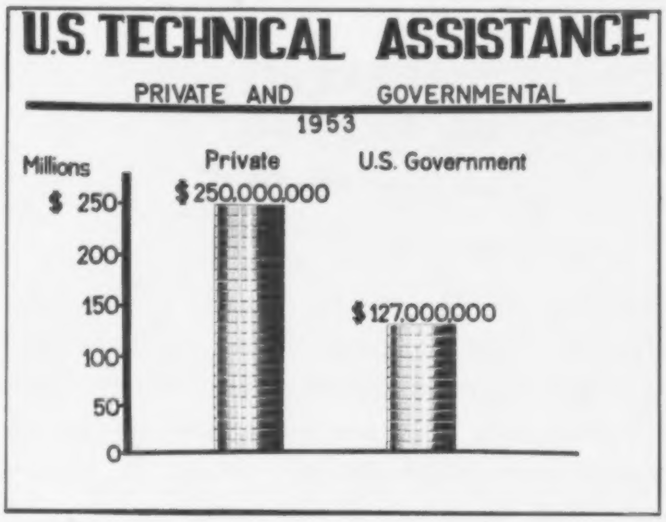

AGRICULTURE FERTILIZER DEMONSTRATIONS
RABI CROPS
1954-55
EACH SYMBOL = 100 DEMONSTRATIONS
= 1000 DEMONSTRATIONS
TOTAL DEMONSTRATIONS
EACH SYMBOL = 10,000
RABI CROPS 78,000

Maps, combined with symbols are an effective way to make statistics realistic and meaningful.

Always remember that color can add much toward effectiveness of any visual material you may want to produce.

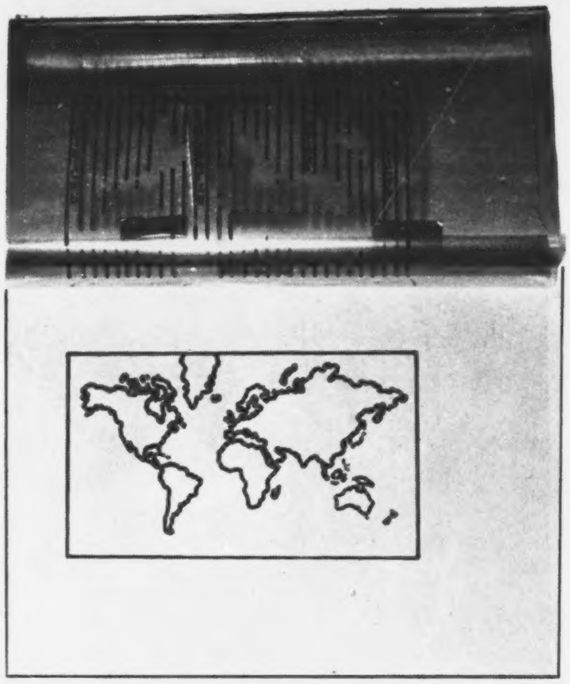




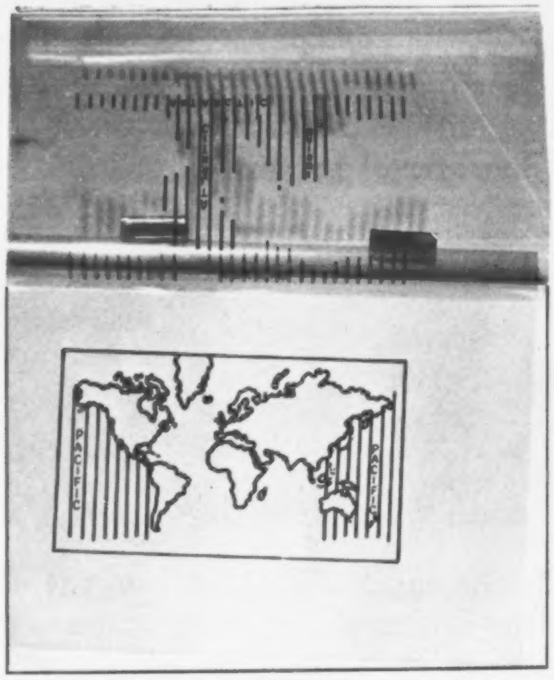


OVERLAY CHARTS

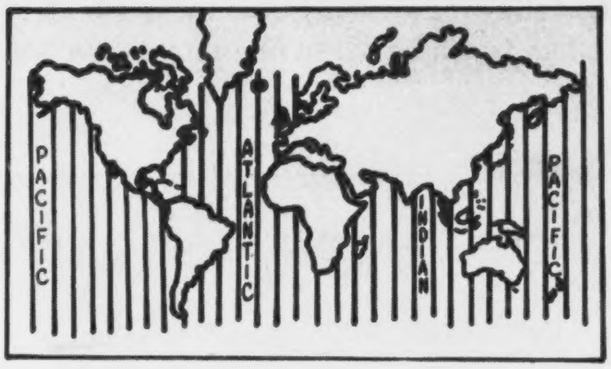
These 5 photographs on the use of overlays with a map, serve to point out the value of teaching with overlays. They are easy to make and the materials needed are inexpensive.



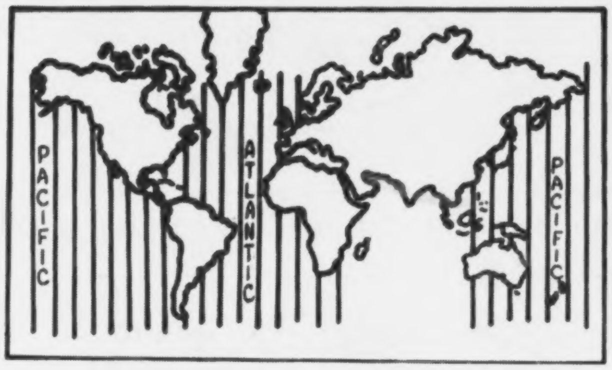
Map painted with India ink on cardboard


PACIFIC
PACIFIC

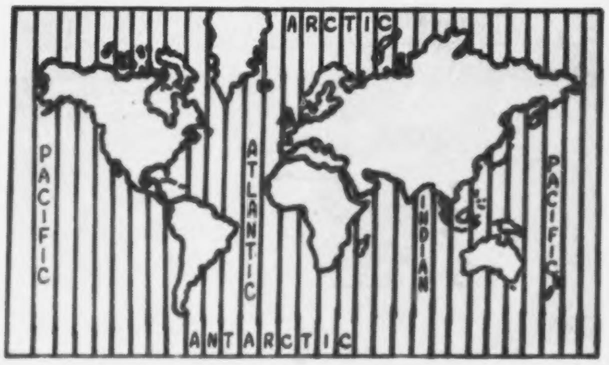
First overlay showing Pacific Ocean


PACIFIC
ATLANTIC
INDIAN
PACIFIC

Second overlay with Atlantic Ocean


PACIFIC
ATLANTIC
PACIFIC

Third overlay with Indian Ocean

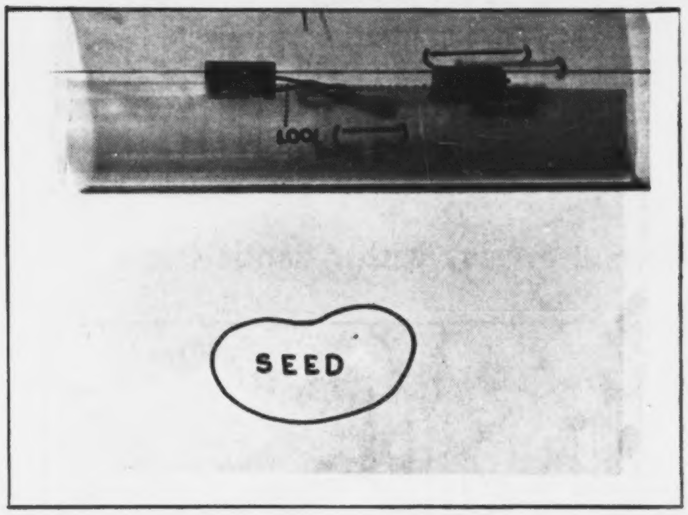

ARCTIC
PACIFIC
ATLANTIC
INDIAN
PACIFIC
ANTARCTIC

Fourth overlay with Antarctic and Arctic Oceans

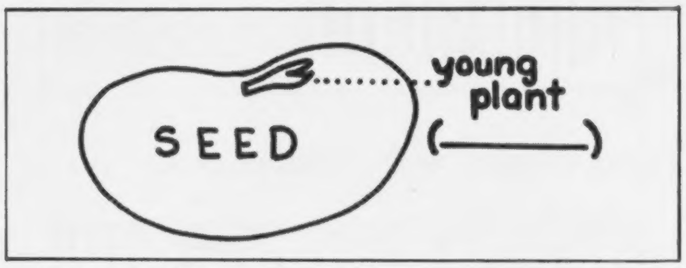
Materials for the overlay consisted of a cardboard sheet, 4 acetate sheets, India ink, a pen and 2 strips of tape.

This series was used as part of a social studies unit to teach locations of oceans of the world. Though used as a television presentation, the same series would be useful in small group demonstrations.

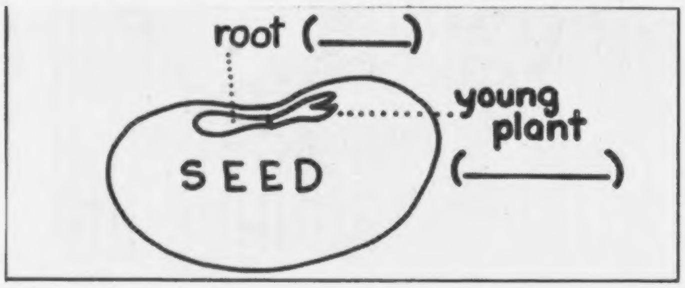
The following overlay chart was effectively used to teach children the parts of a seed.



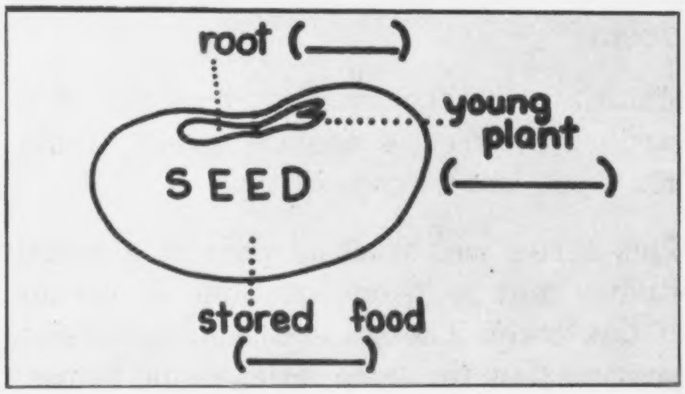
Line drawing of a seed on backing sheet.



First overlay



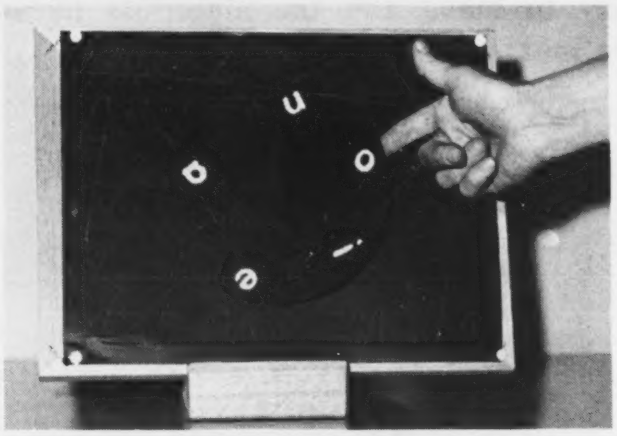
Second overlay



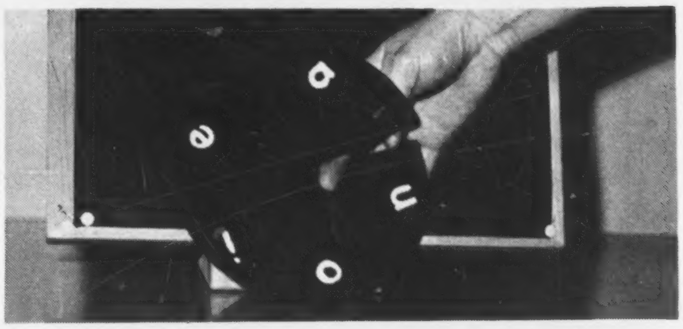
Third overlay

PULL CHARTS

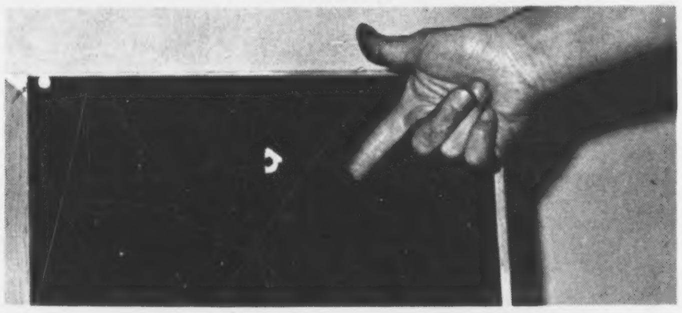
Pull charts are useful in showing movement or in concealing material until you need it for the sequence of a unit which you are teaching.



This pull chart is easily made

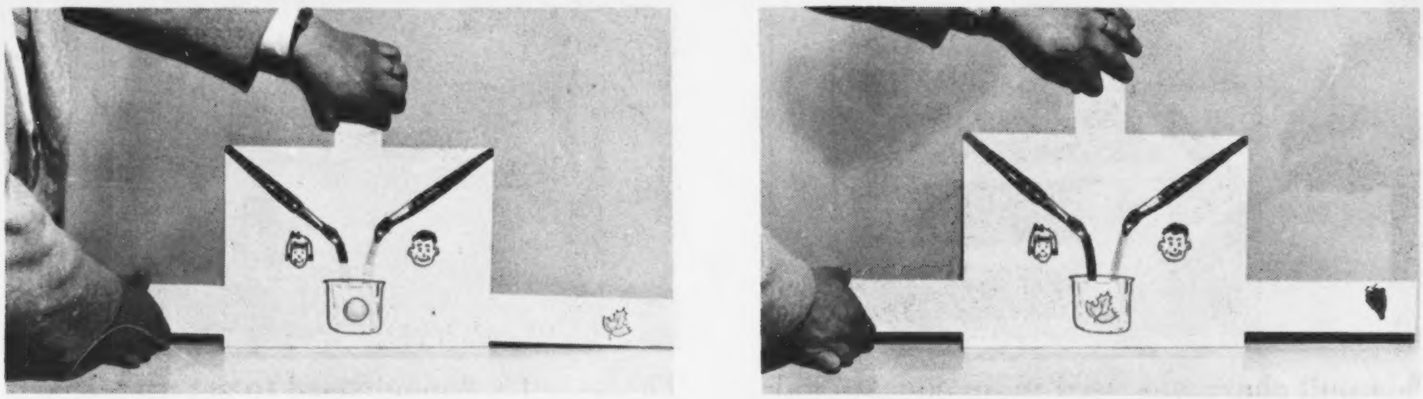


Cut a slit in the top half of the cardboard sheet. The slit should be ½ of the diameter of the circular cardboard.
Cut a slit in the cardboad circle to ½ the diameter of the circle.

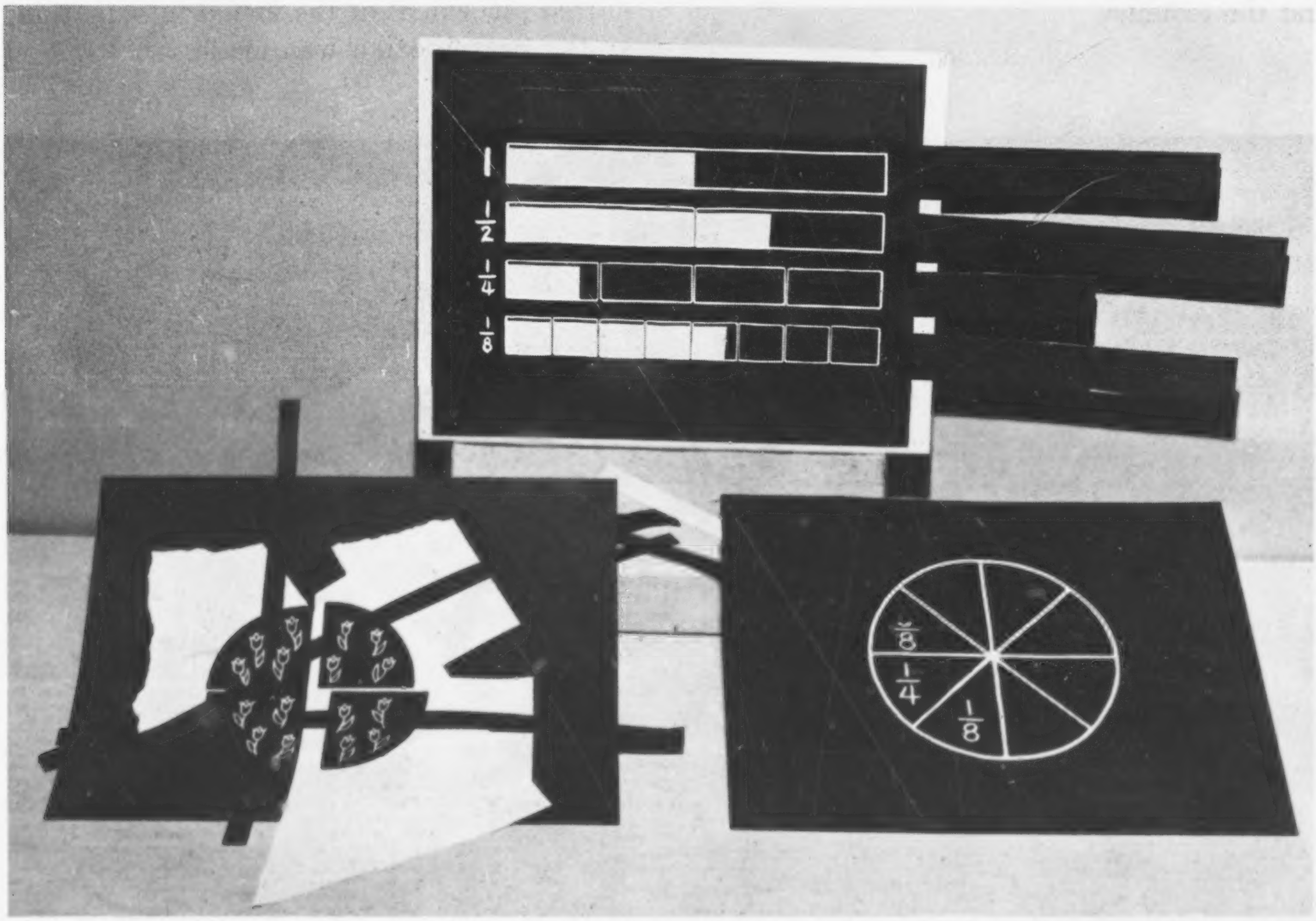


Slide the cardboard circle into the slit of the cardboard square. Now you are ready to use it as a teaching device. A little practice and you will find it most useful as a teaching aid.

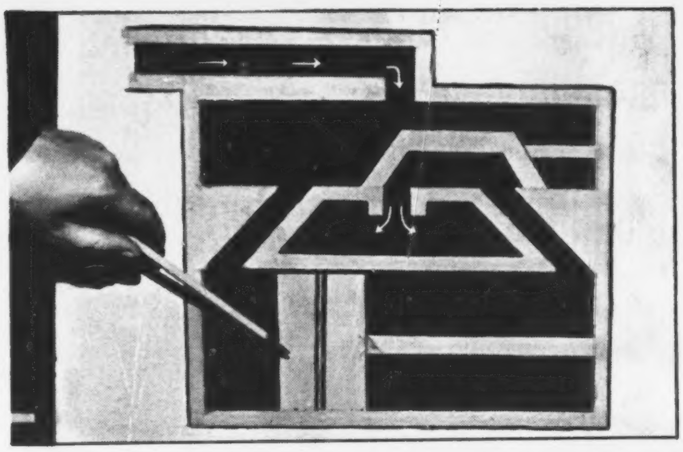
OTHER KINDS OF CHARTS FOR YOU TO MAKE AND USE



In a television art program this teacher uses a pull chart to show combinations of colors. To assist the children in visualizing the colors he uses recognizable objects such as the leaf and orange.



Charts such as these are useful in teaching mathematical concepts. The chart in the background is a simple pull chart, while the chart at the lower right is made as described on page I-6-04. Paper was inserted on the facing of the pull chart at the lower left, so that you could see how it works. The circle of flowers can be divided into quarters by pulling any of the quarters from the circle.



This pull chart was used in an educational television broadcast to explain the principle of a steam engine. The chart represents a cross section showing the valve, piston and the exhaust.

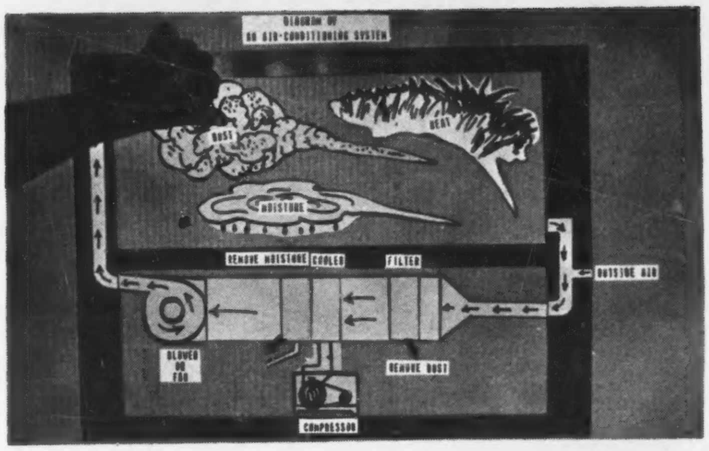
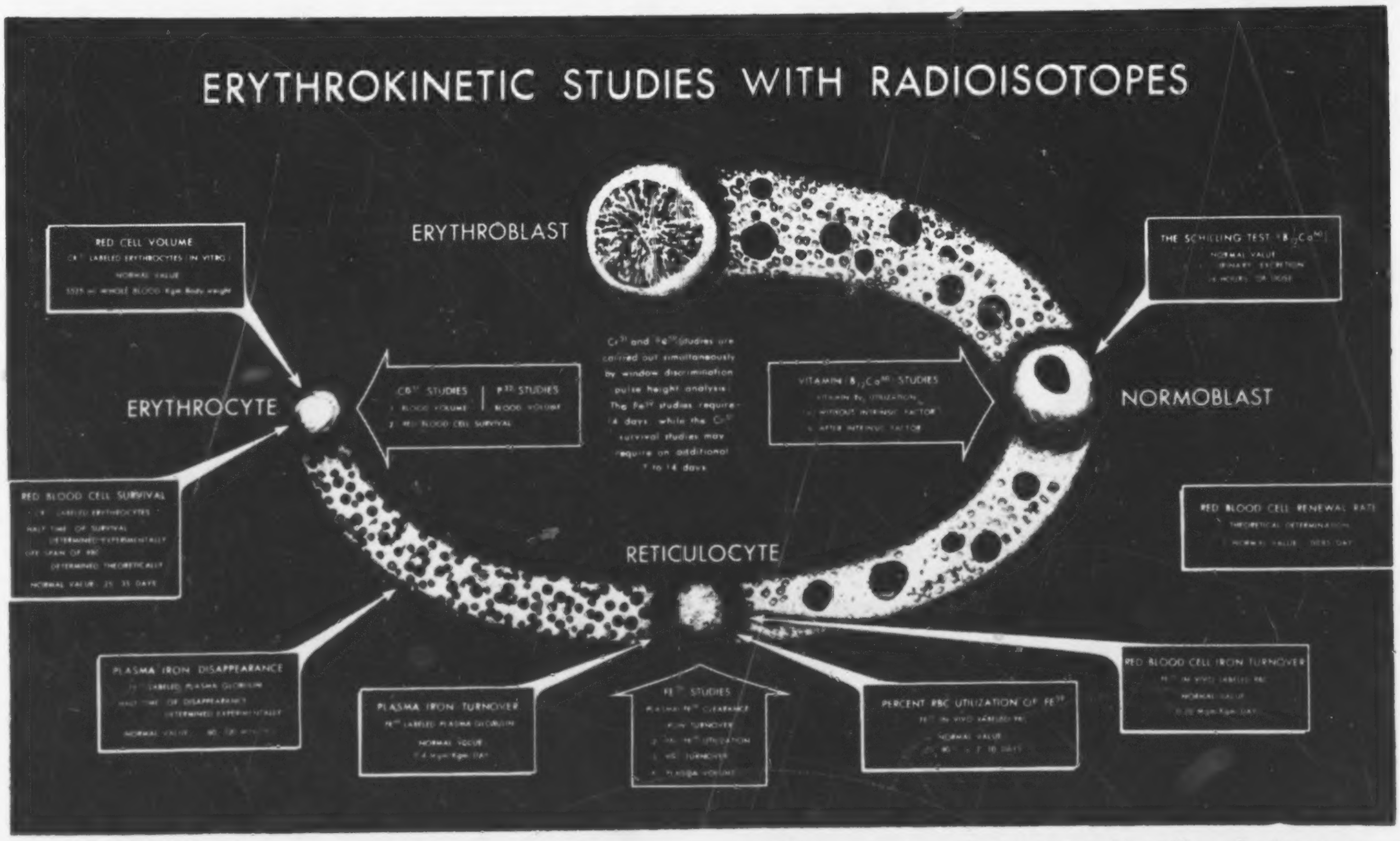


DIAGRAM OF AN AIR-CONDITIONING SYSTEM
DUST
HEAT
MOISTURE
REMOVE MOISTURE
COOLER
FILTER
OUTSIDE AIR
BLOWER OR FAN
REMOVE DUST
COMPRESSOR

The use of a flannelboard to set up a chart such as the one shown above was utilized to teach the principle of airconditioning. The movable parts on the flannelboard permitted placement of the visual information as the presentation was made.


ERYTHROKINETIC STUDIES WITH RADIOISOTOPES
ERYTHROBLAST
NORMOBLAST
RETICULOCYTE
ERYTHROCYTE
RED CELL VOLUME
NORMAL VALUE
RED BLOOD CELL SURVIVAL
NORMAL VALUE: 25-35 DAYS
Cr^{51} STUDIES
1. BLOOD VOLUME
2. RED BLOOD CELL SURVIVAL
P^{32} STUDIES
BLOOD VOLUME
VITAMIN ($B_{12}Co^{60}$) STUDIES
THE SCHILLING TEST ($B_{12}Co^{60}$)
NORMAL VALUE
RED BLOOD CELL RENEWAL RATE
THEORETICAL DETERMINATION
PLASMA IRON DISAPPEARANCE
PLASMA IRON TURNOVER
NORMAL VALUE
Fe^{59} STUDIES
PERCENT RBC UTILIZATION OF Fe^{59}
RED BLOOD CELL IRON TURNOVER
NORMAL VALUE

Cr^{51} and Fe^{59} studies are carried out simultaneously by window discrimination (pulse height analysis). The Fe^{59} studies require 14 days, while the Cr^{51} survival studies may require an additional 7 to 14 days.

This chart shows the results of studies in a complicated scientific process and was effectively used as a device to inform doctors of specific information related to research they were conducting. Charts such as this require close coördination between the content people and the graphics people so that the information is absolutely correct, and that the graphic presentation is in its most effective and realistic form.

YOU CAN MAKE A POSTER

A poster is an informational or educational tool with which to reach many people in many locations. Posters can be used for several purposes. Here are a few examples:

motivation of new ideas

informing people of meetings or film showings

accident prevention

new processes

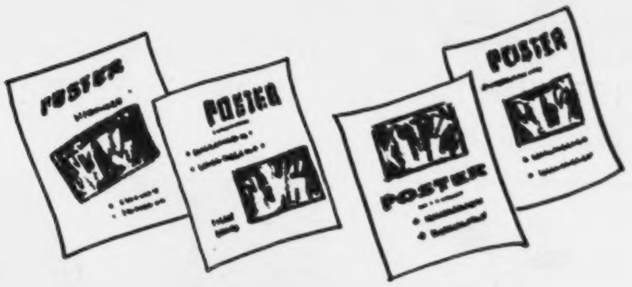
Before making a poster, you should ask yourself . . . Who am I trying to reach?

What do I want to tell?

Backing for posters may be colored construction paper, Bristol board, cardboard, newsprint or similar material. Materials which you will use in making the poster will depend on (a) the nature of your theme, (b) availability and your ingenuity.

BEFORE you make a poster —

- decide your theme
- decide which words are most suitable
- sketch one or more layouts and decide on the best
- gather all needed materials to prepare the poster



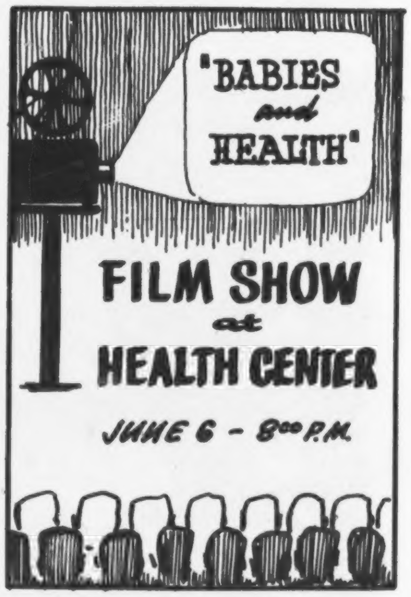
several sketched layouts will help you determine the most effective design to use

THEN — you are ready to make a poster

- prepare the lettering
- add desired objects
- cover edges of poster with opaque tape
- erase smudge marks

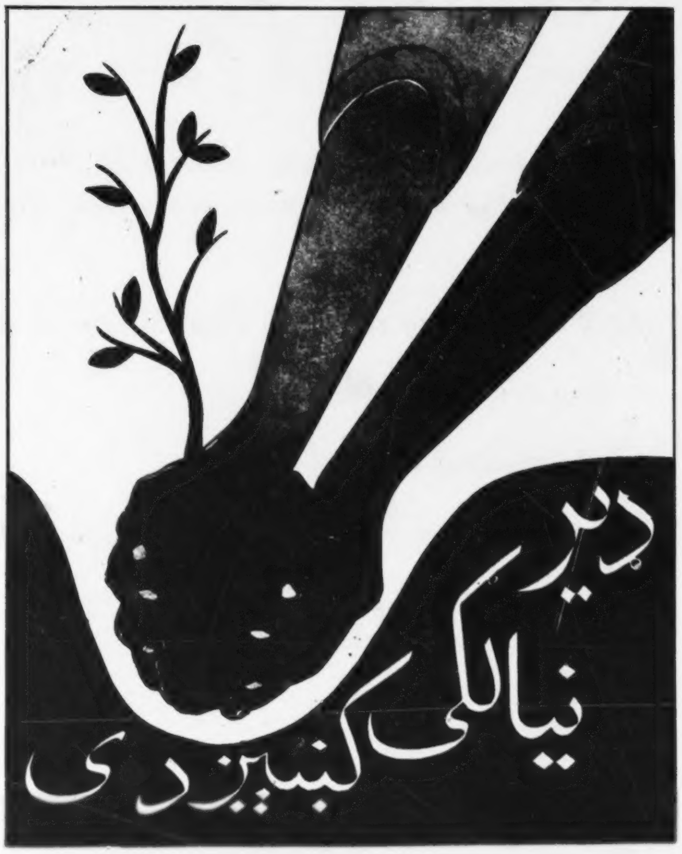
POSTERS
CAN . . .

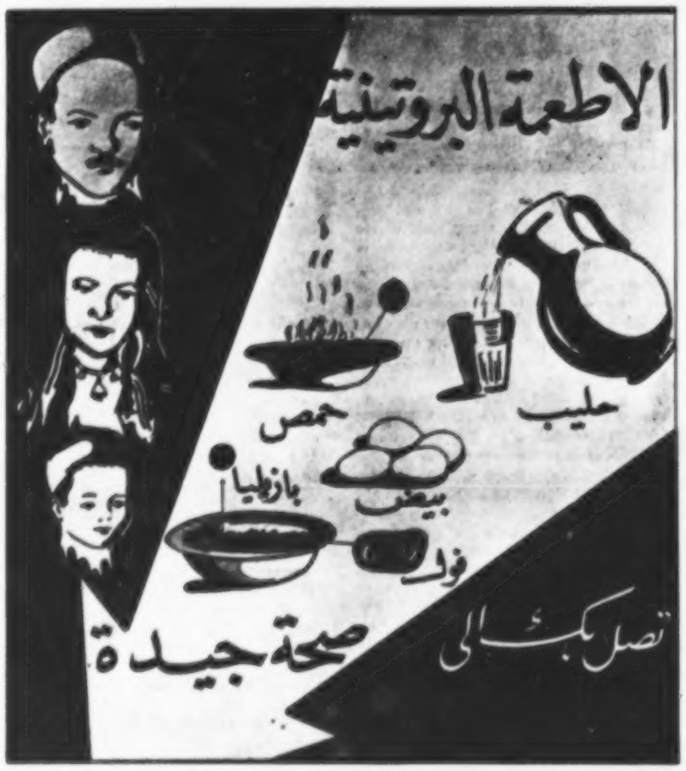
- MOTIVATE
- EDUCATE
- INFORM PEOPLE THE WORLD OVER

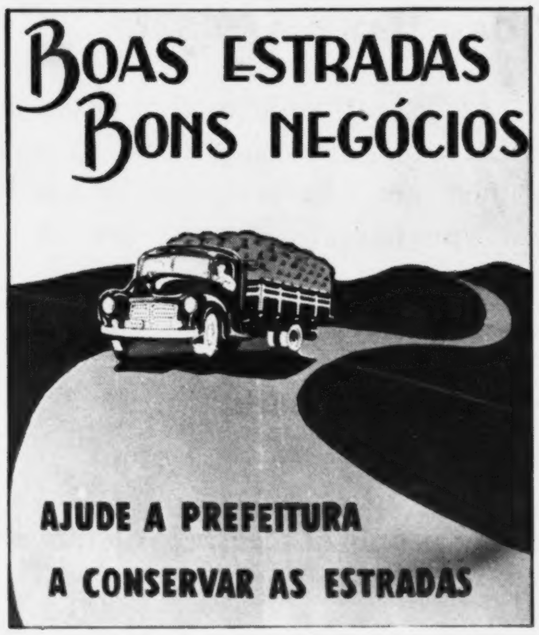


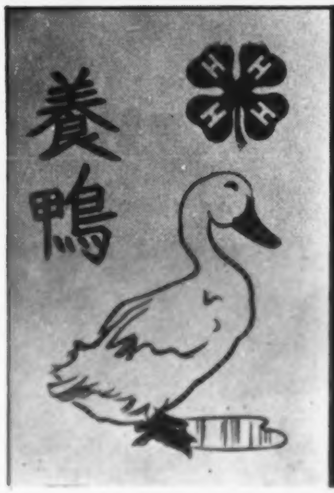
When you display your poster be sure to find a place where there is adequate light and where many people will see it

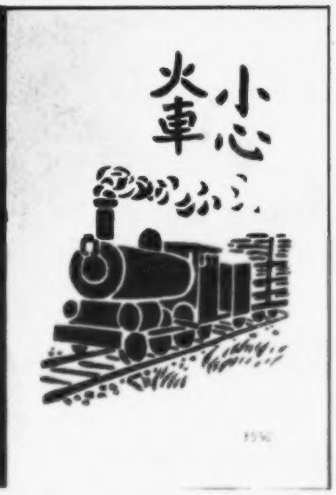
THESE EXAMPLES POINT TO THE SIMPLICITY IN ILLUSTRATION AND THE USE OF FEW WORDS TO TELL THE STORY.

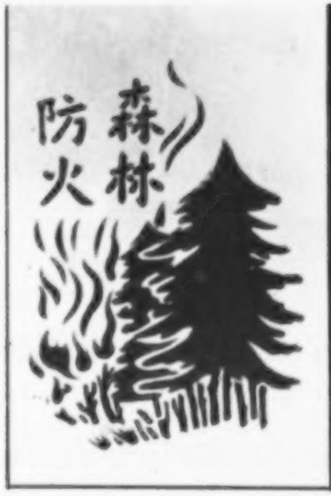

دير
نيالكى كنبيزدى

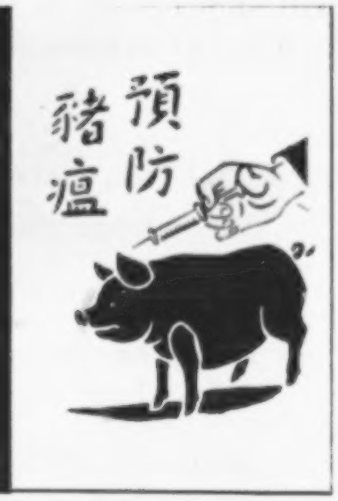

الاطعمة البروتينية
حليب
حمص
بيض
بازليا
فول
صحة جيدة
تصل بك الى


BOAS ESTRADAS
BONS NEGÓCIOS
AJUDE A PREFEITURA
A CONSERVAR AS ESTRADAS

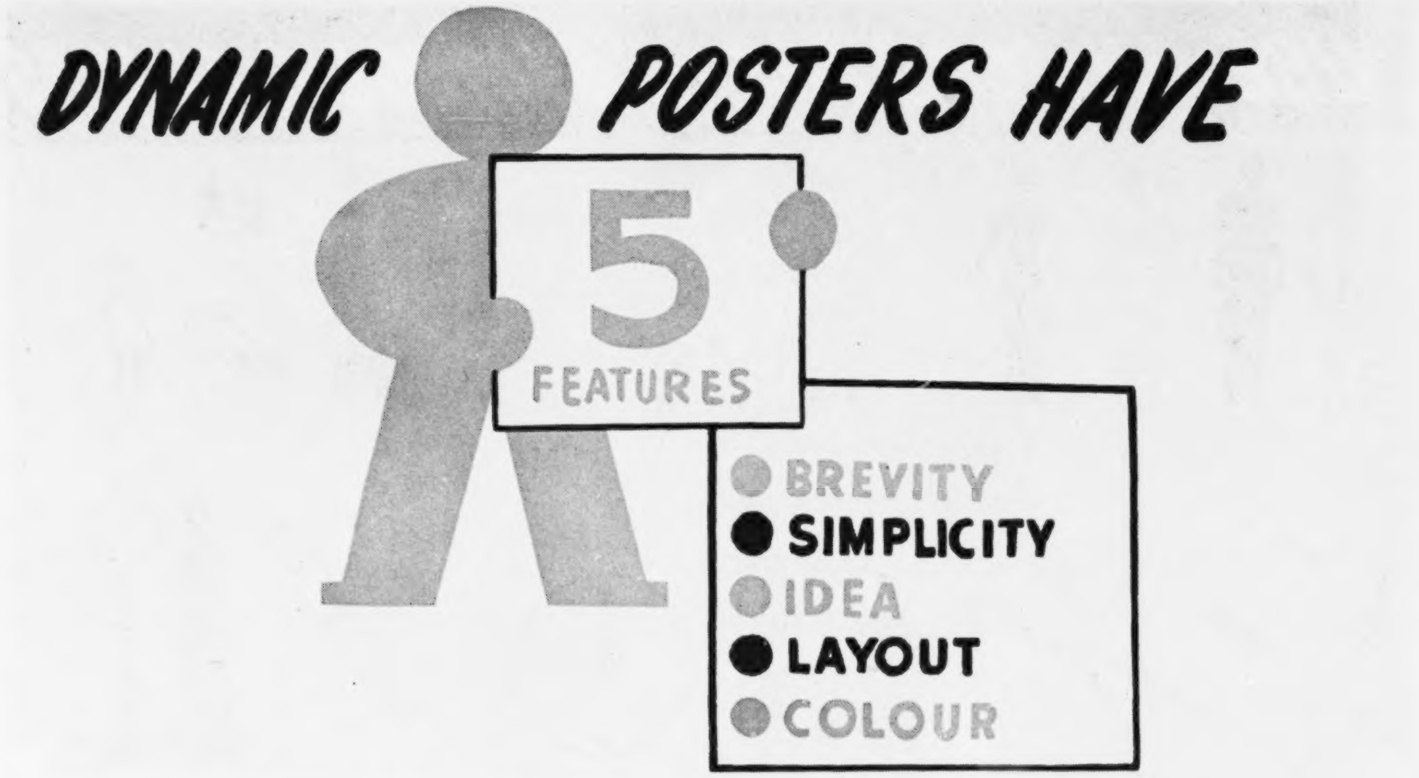








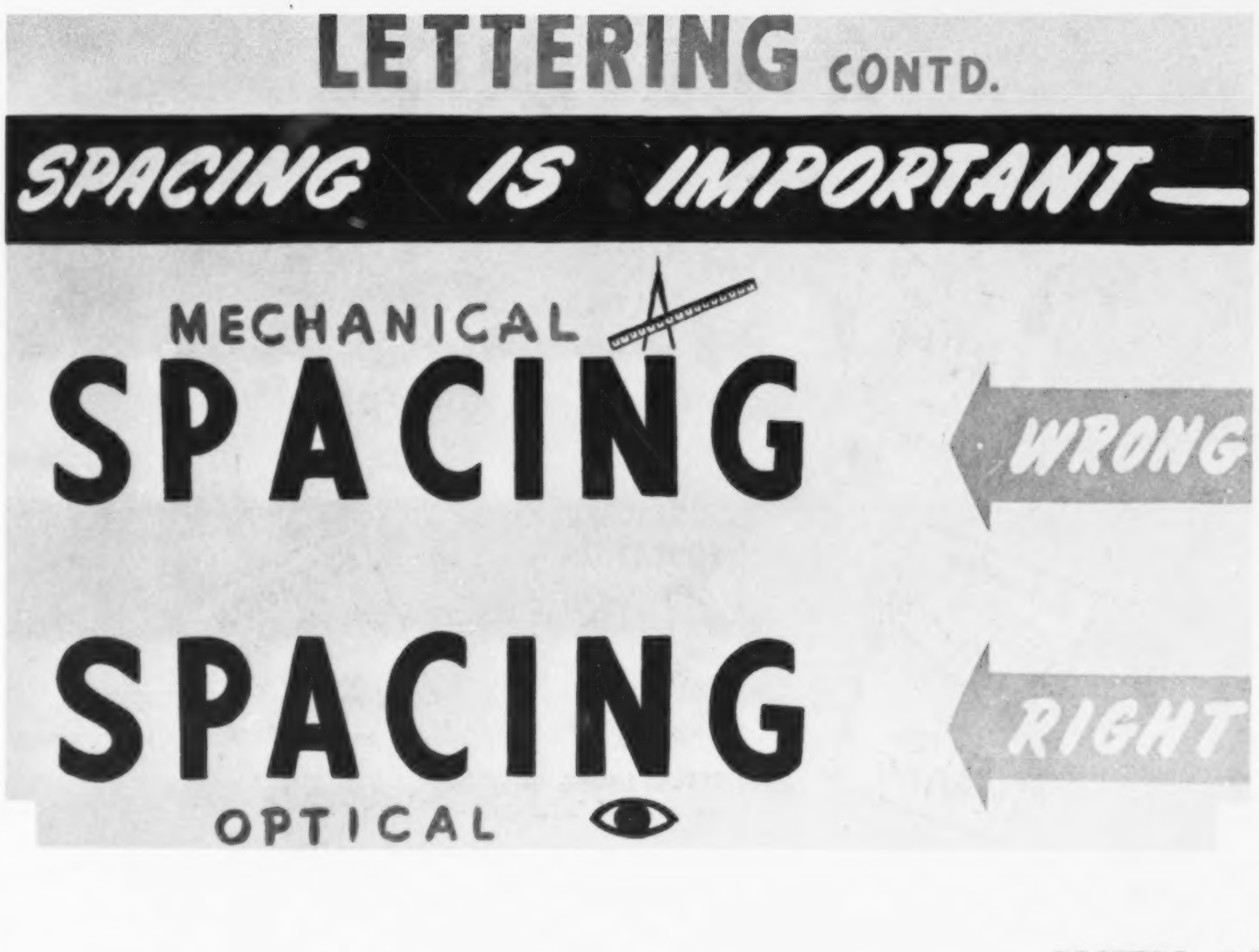
SOME VISUAL THINKING WHEN YOU WANT TO MAKE A POSTER



DYNAMIC POSTERS HAVE

5 FEATURES

- ● BREVITY
- ● SIMPLICITY
- ● IDEA
- ● LAYOUT
- ● COLOUR



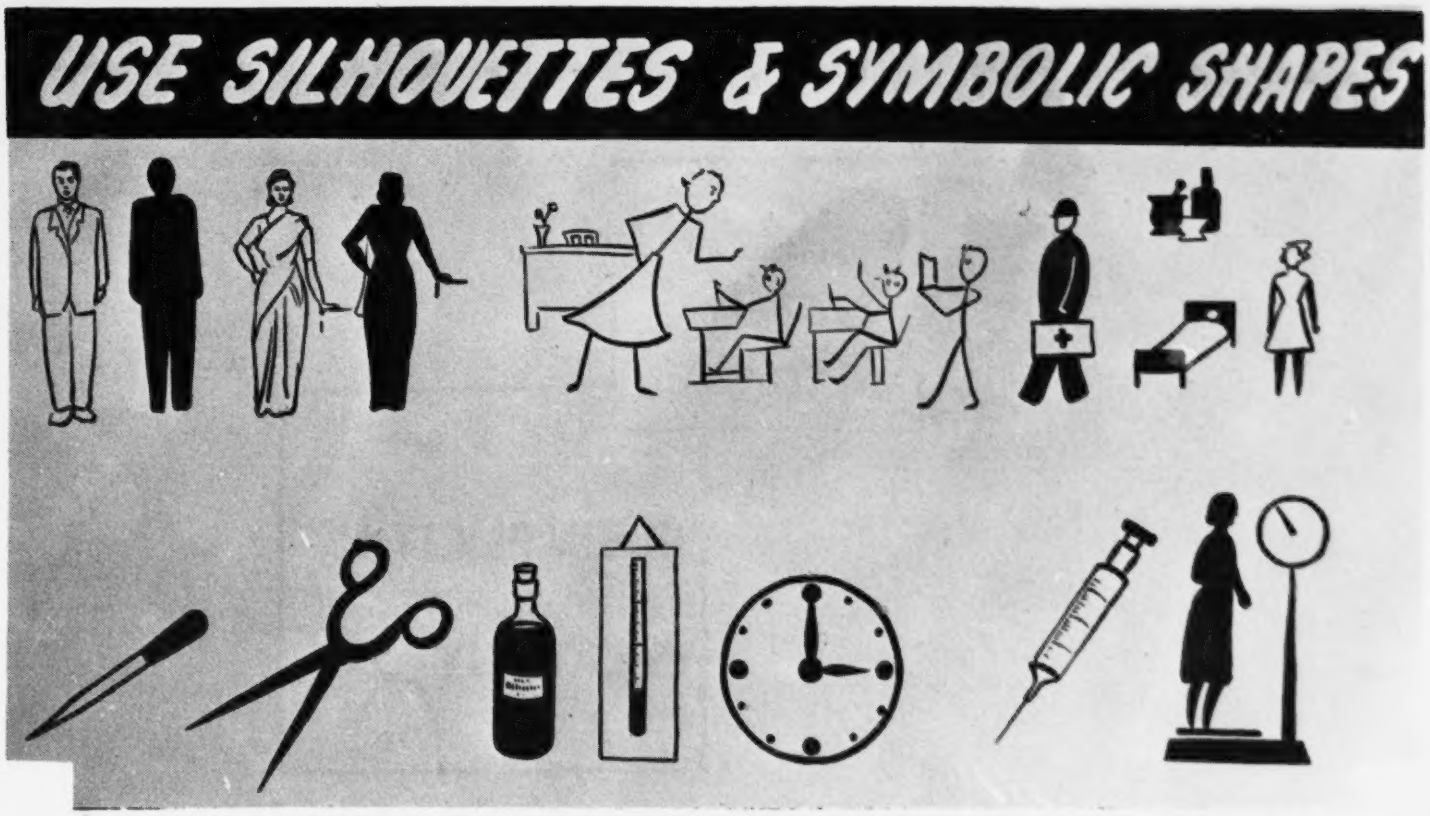
LETTERING CONTD.

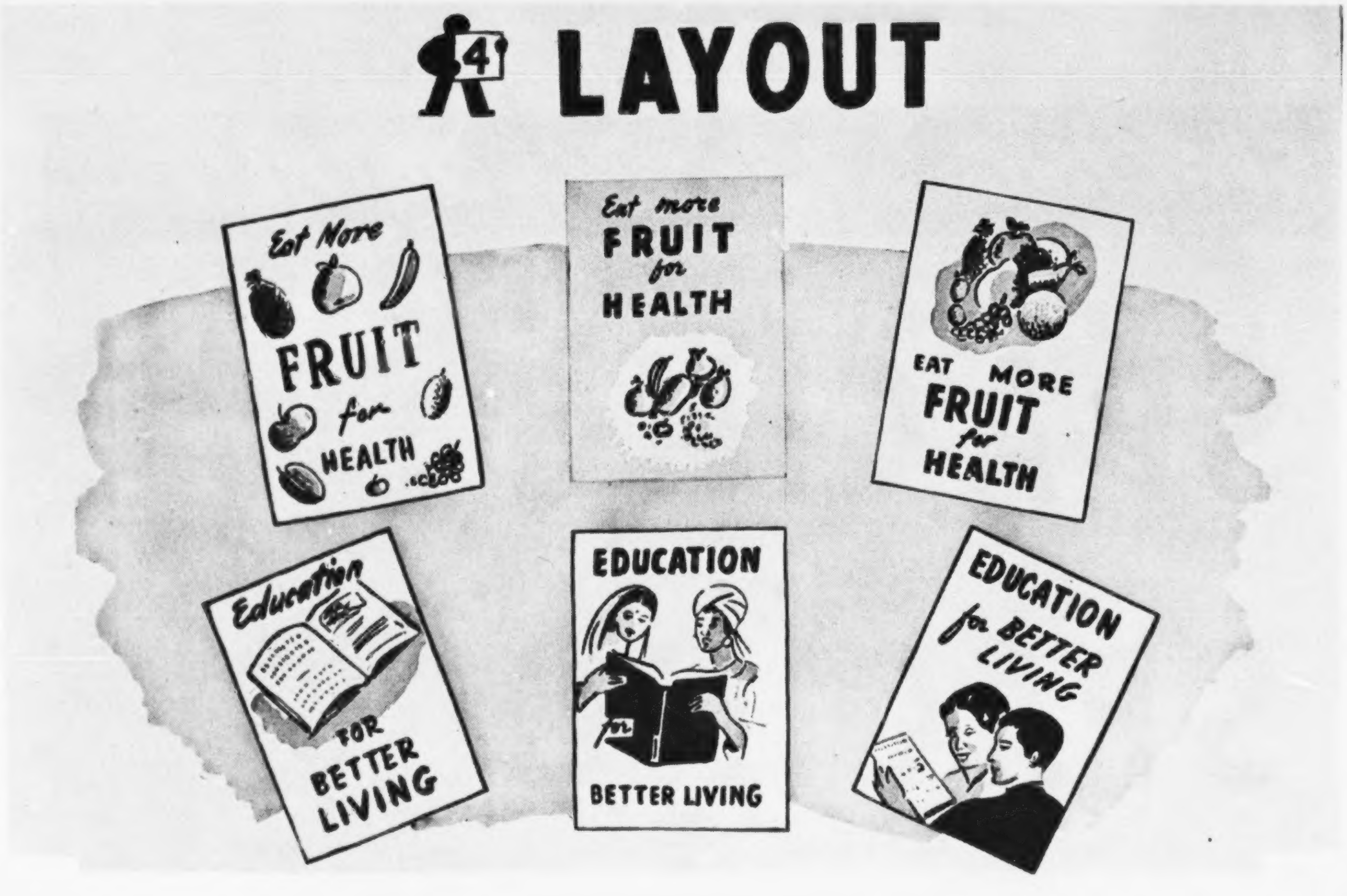
SPACING IS IMPORTANT—

MECHANICAL SPACING ← WRONG

SPACING ← RIGHT
OPTICAL

MORE VISUAL THINKING WHEN YOU WANT TO MAKE A POSTER

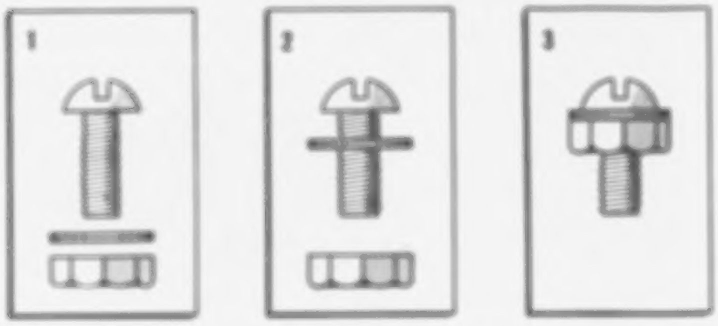

USE SILHOUETTES & SYMBOLIC SHAPES


4 LAYOUT
Eat More FRUIT for HEALTH
Eat more FRUIT for HEALTH
EAT MORE FRUIT for HEALTH
Education FOR BETTER LIVING
EDUCATION for BETTER LIVING
EDUCATION for BETTER LIVING

YOU CAN MAKE FLASH CARDS

Flash cards can be a fine supplement to teaching a process, a series of steps, or anything which requires a sequence.

Flash cards are easily made of Bristolboard or other heavy, smooth cardboard or paper. Cut them to desired size and draw needed objects on them. You may want to paste up illustrations or symbols on the cards.



HOW TO USE FLASH CARDS EFFECTIVELY

a. Stack these cards—picture sides face up — No. 1 on top; No. 2 below it; No. 3 below No. 2, etc., etc.

b. Hold the cards chest high so that your audience can see No. 1 first. Explain No. 1.

c. Then slip No. 1 behind the stack, exposing No. 2. Explain No. 2.

d. Then slip No. 2 behind the stack, exposing No. 3. Explain No. 3. Repeat until the whole series is finished.

e. Then pass the whole stack of cards to a member of the audience—at either end of a row. Ask him to look at the top card and pass it on. The audience should see all cards in sequence.

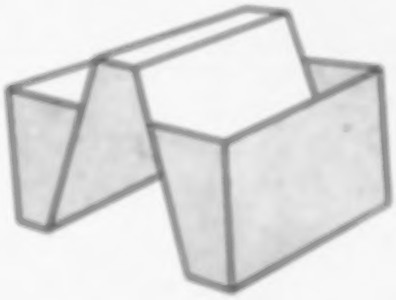
f. Rehearse the **presentation** several times before trying it on an audience.

g. Do not let anyone sit more than 20 feet away from you and don't let anyone be too far off to the side. Flash cards are good for an audience of about 30 people.

h. After everyone has seen the cards individually hold a question-and-answer period. Make sure you know the answers. Prepare yourself thoroughly for this presentation.

i. If you have other audio-visual materials on the same subject — use them at this time if possible.

j. Remember rehearse; demonstrate; pass out the cards; hold a question-and-answer period; and follow with other audio-visual materials.



suggested box for holding flashcards

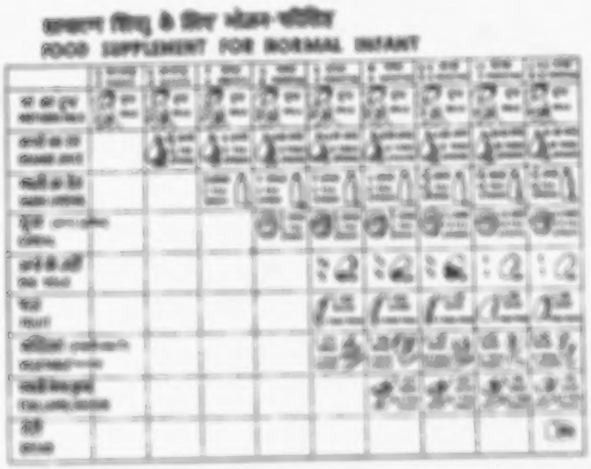
(Adapted from the Multiplier)

USING FLASH CARDS

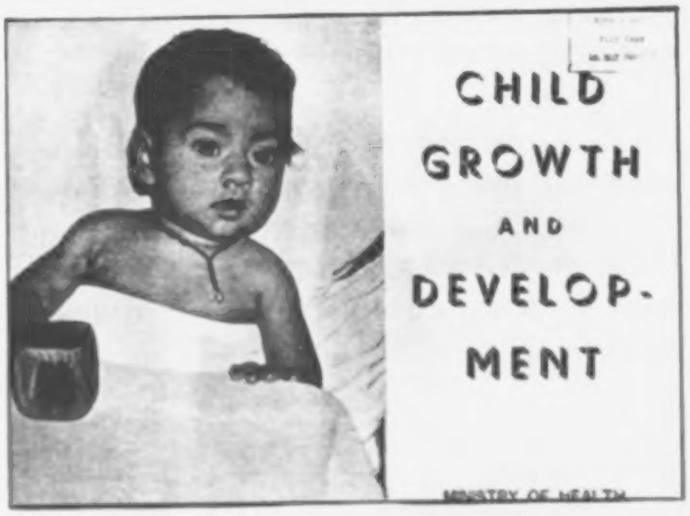
Flash cards are among the visual aids used for health education by the Ministry of Health, Government of India. The Communications Media Center, A.I.D./India, assisted in the preparation of a set of these cards which illustrate CHILD GROWTH AND DEVELOPMENT.

There are 16 cards, 13½" x 10½", in the set. The first fifteen cards present the various stages in the growth and development of an infant from one month through early childhood. The message of each card is conveyed by a photograph and a short caption. The sixteenth card gives instructions to the nurse educator on how to use the cards.

A valuable companion aid to the flash cards which the mother can take home is a 2-page leaflet. The front cover repeats some of the information on the flash cards showing at what ages a baby should smile, be able to manipulate his hands, roll, sit alone. A picture chart on the inside of the leaflet is reproduced here. Even a newly-literate mother should be able to follow the supplemental feeding advice.

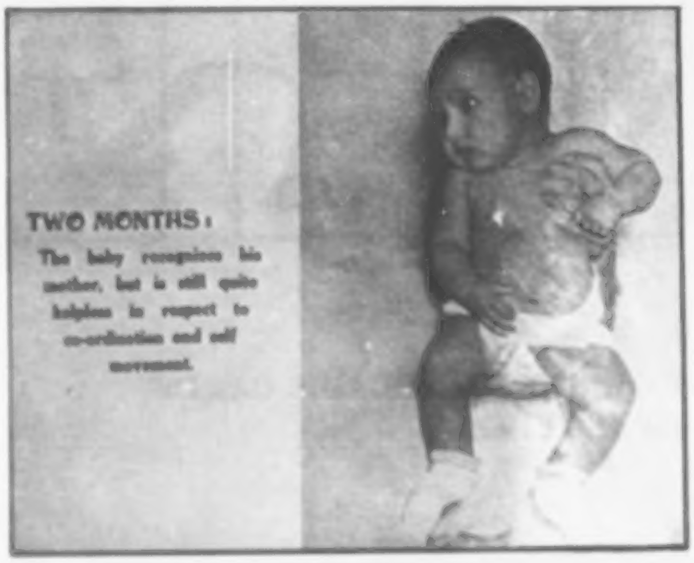

FOOD SUPPLEMENT FOR NORMAL INFANT

Below are three sample pages from the India flash card set. Note the simplicity of both the pictures and words.



CHILD
GROWTH
AND
DEVELOP-
MENT

MINISTRY OF HEALTH



TWO MONTHS:
The baby recognises his mother, but is still quite helpless in respect to co-ordination and self movement.

THREE MONTHS: The infant begins to recognise sounds, will turn its head toward the sounds; will smile in recognition of its mother; is fascinated by the movement of its own hands.

YOU CAN MAKE A FLIP CHART [FLIPBOOK]

The flip chart has two rectangular wooden covers.

Use plywood to make these covers. You can also make them of thin hard-wood boards. These covers are joined by hinges, on one of their narrow sides, to two wooden strips. The wooden strips will thus act as the back of a book and the covers will open outward.

Along the middle of the strips, and at equidistant points, make perforations to let 3/16" x 1½" bolts go through to hold the plates and covers together. When the flip chart is being used, the wooden strips will constitute its upper end.

To give stability to your flip chart when placing it on a board or a stand for your demonstrations, proceed as follows:

Drill a ⅛" (3 mm) hole on the mid-point, about ¼" (½ cm.) from the lower edge. Pass through this hole a piece of cord about ⅛" (3 mm) thick and 11" (28 cm.) long. Make a knot at the end of this cord.

Make a 1/6" (2 mm) wide and ½" (1½ cm.) vertical slot on the mid-point of the other cover's lower edge.

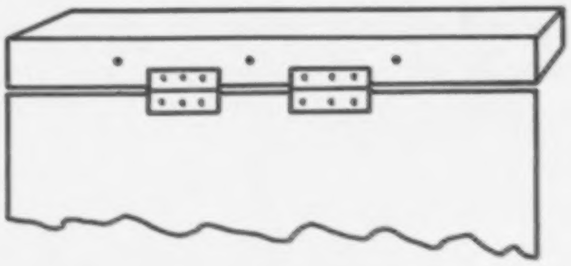
To keep the flip chart open while you use it, pass the cord through the slot and pull it until the second knot catches in it. That way the flip chart will stand up like a V upside down.

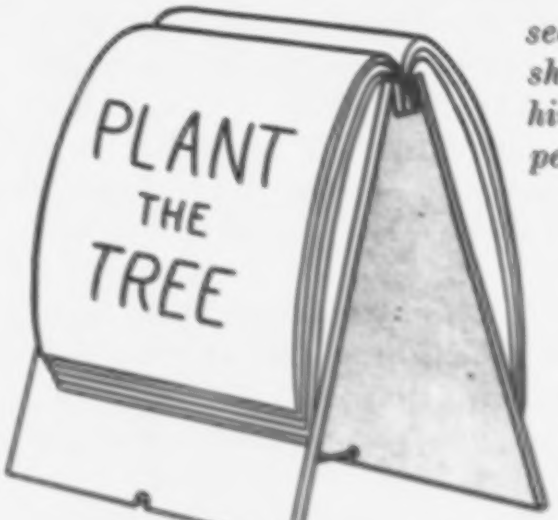
You can also make your flip chart multipurpose by doing the following:

Paint one of the covers' inside surface with flat black or green paint; if possible, use special blackboard paint. You can thus provide yourself with a small blackboard.

Cover the inside of the other cover with a piece of light blue flannel. Attach the flannel only by the edges so that it offers a flat, unwrinkled surface. That gives you a small flannelgraph.

you can use metal, canvas or cloth hinges





section showing hinging and perforating

ready to use

NOTE: Outside dimensions are not given here since the preparation of a flip chart could be made in any size to meet your needs.

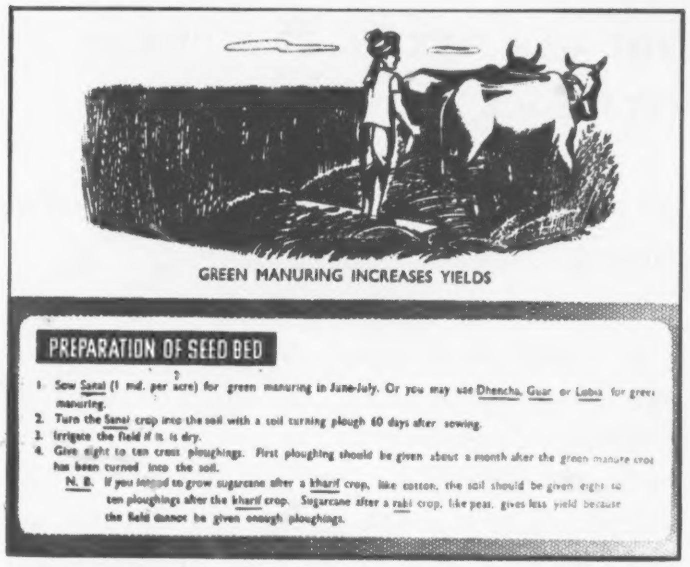
USING THE FLIPBOOK

One technique for transmitting information readily to groups is the flipbook.

One such flipbook deals with teaching spraymen how to spray houses with DDT in the residual spray control of malaria. It was first developed in Indo-china and then adapted to Burma. The book, widely used in these two countries, consists of 24 pages. It sets forth five specific points, and is designed to present the theoretical material which a spray crewman needs to know in order to be an effective operator in residual spray work.

The principal part of the flipbook concerns itself with the actual steps in mixing, straining, and spraying the DDT mixture. It gives full instruction about the mechanism and maintenance of the spray can, giving names of all parts and complete directions on use. Material on how to prepare houses for spraying and the actual procedures of spraying, with clear exposition and proper repetition, is presented. The flipbook is used as an integral part of the training of spraymen, and since all communication is by way of graphics and lectures from the teacher, it is possible to communicate with illiterate individuals.

(Edited from article "Flipbooks" written by Gerald Winfield, Communications Resources Division, A.I.D./Washington, for the Multiplier).

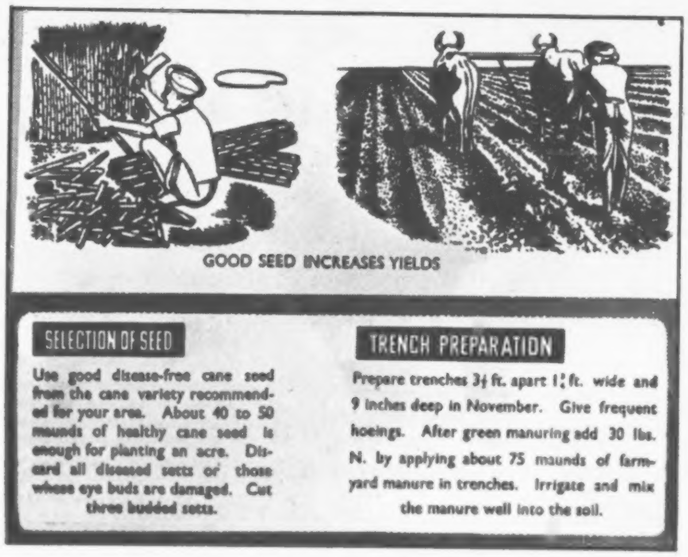


GREEN MANURING INCREASES YIELDS

PREPARATION OF SEED BED

1. Sow Sanai (1 md. per acre) for green manuring in June-July. Or you may use Dhencha, Guar or Lobia for green manuring.
2. Turn the Sanai crop into the soil with a soil turning plough 60 days after sowing.
3. Irrigate the field if it is dry.
4. Give eight to ten cross ploughings. First ploughing should be given about a month after the green manure crop has been turned into the soil.

N. B. If you intend to grow sugarcane after a kharif crop, like cotton, the soil should be given eight to ten ploughings after the kharif crop. Sugarcane after a rabi crop, like peas, gives less yield because the field cannot be given enough ploughings.



GOOD SEED INCREASES YIELDS

SELECTION OF SEED

Use good disease-free cane seed from the cane variety recommended for your area. About 40 to 50 maunds of healthy cane seed is enough for planting an acre. Discard all diseased setts or those whose eye buds are damaged. Cut three budded setts.

TRENCH PREPARATION

Prepare trenches 3½ ft. apart 1½ ft. wide and 9 inches deep in November. Give frequent hoeings. After green manuring add 30 lbs. N. by applying about 75 maunds of farmyard manure in trenches. Irrigate and mix the manure well into the soil.

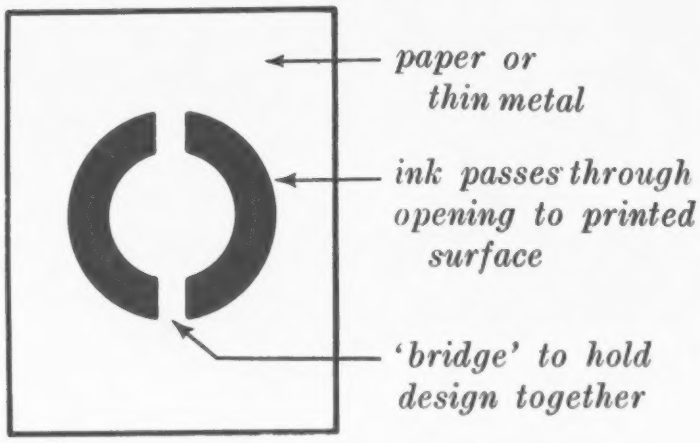
These two examples are taken from a small flipbook produced in India, and extensively used.

Note the information for the demonstrator found on the pages.

The size of your flipbook is determined by the number of people you plan to reach at any given demonstration. If you are going to talk to three or four people at one time you may only need a flipbook about 9" x 12".

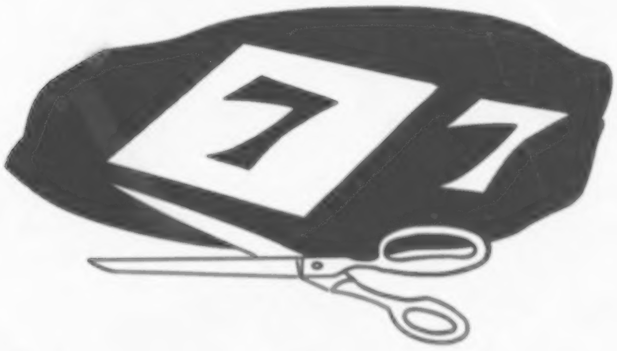
SILK SCREEN PRINTING

Silk screen printing is essentially a stencil process whereby ink or paint is applied through an opening in a stencil onto the surface to receive the print. Simple stencils usually consist of heavy paper or thin metal sheets in which letters or designs have been cut. For more detailed work a standard stencil is impractical because "bridges" must be left to hold letters together (center of the letter "O" as an example).

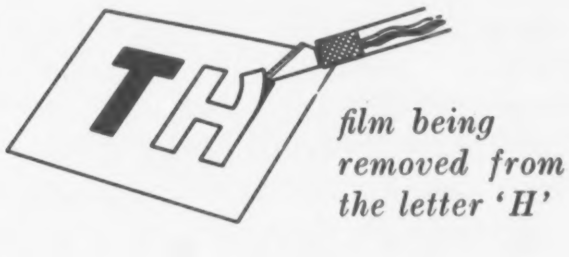

paper or thin metal
ink passes through opening to printed surface
'bridge' to hold design together

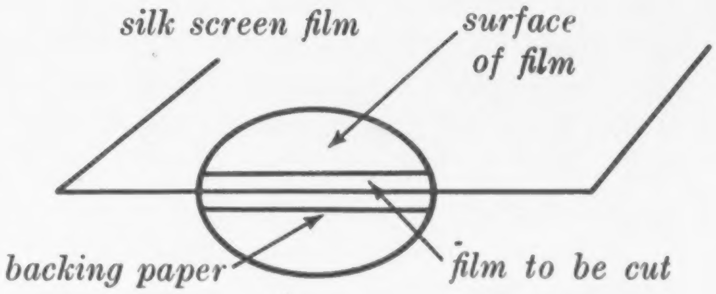
Three Popular Methods of Silk Screening

1. For simple work, designs may be cut from paper and the paper stencil is adhered to the screen.

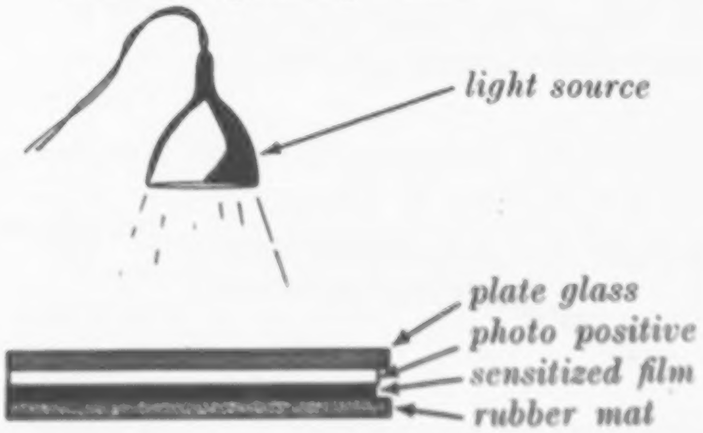


2. Knife-cut film is commonly used for preparing more intricate stencils. The film consists of a lacquer, acetate or gelatin coating adhered to a waxed paper or plastic backing.


master copy is placed under the film and all lines are cut
the film has been removed from the letter 'T'
film being removed from the letter 'H'


silk screen film
surface of film
backing paper
film to be cut

3. More detailed designs or illustrations are usually printed by the "photographic" method. This process consists essentially of exposing transparent positive copy to light-sensitive gelatin film. Portions of the gelatin protected from light during exposure remain soluble in water while areas exposed become insoluble. Unexposed areas are then washed away and the remaining gelatin is adhered to the mesh of the screen, forming a printing stencil.

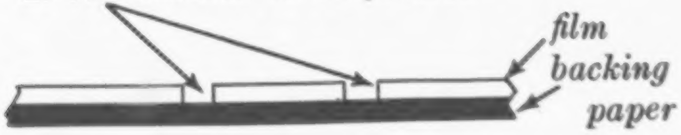

light source
plate glass
photo positive
sensitized film
rubber mat

Designs to be printed are cut into the film with a knife. Care must be taken not to cut through the backing paper or plastic. The film is transparent and may be placed over the copy during this operation. As the portions to be printed are cut, they are peeled from the backing paper and discarded. When all printing portions have been peeled away the screen is placed over the film as illustrated and the film is moistened through the screen with enough of the solvent to soften the film, and cause it to become sticky but not to dissolve it. The film is then pressed into the mesh of the screen and allowed to dry. After drying, the paper or plastic backing can be peeled from the screen, leaving the desired film stencil adhered to the screen.

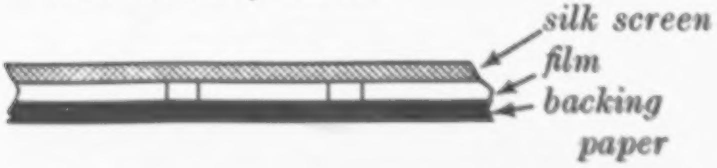
In silk screen printing the entire stencil is adhered to an open mesh screen stretched tightly on a frame. All portions of the design are held in place by the screen.

Cross section of film being adhered to silk screen.

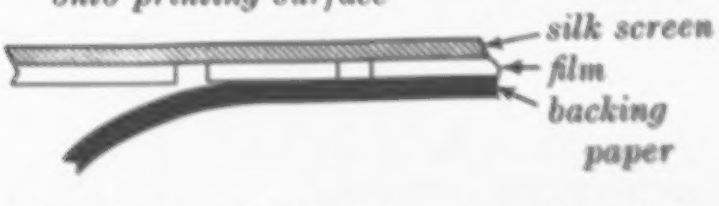
1. cut sections to be printed


film
backing paper

2. film is softened with solvent and pressed into mesh of screen


silk screen
film
backing paper

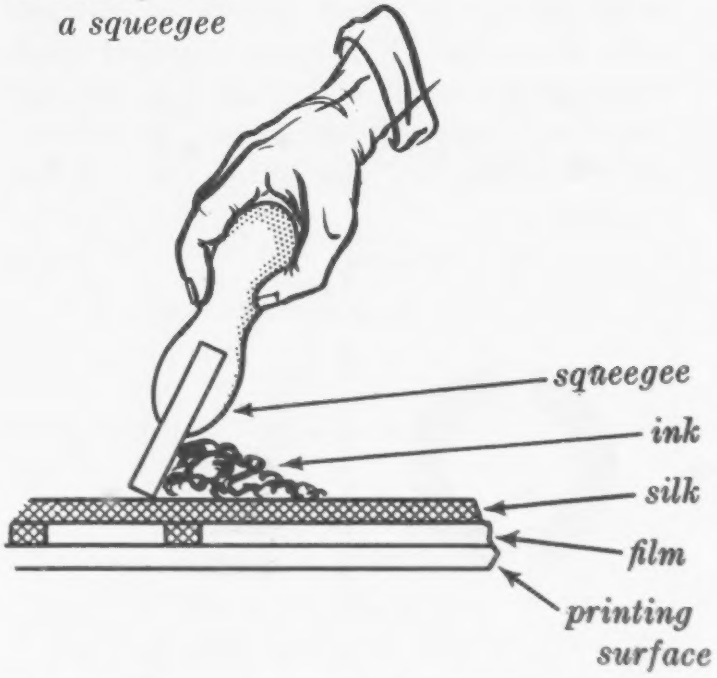
3. cut area remains open so ink can flow onto printing surface


silk screen
film
backing paper

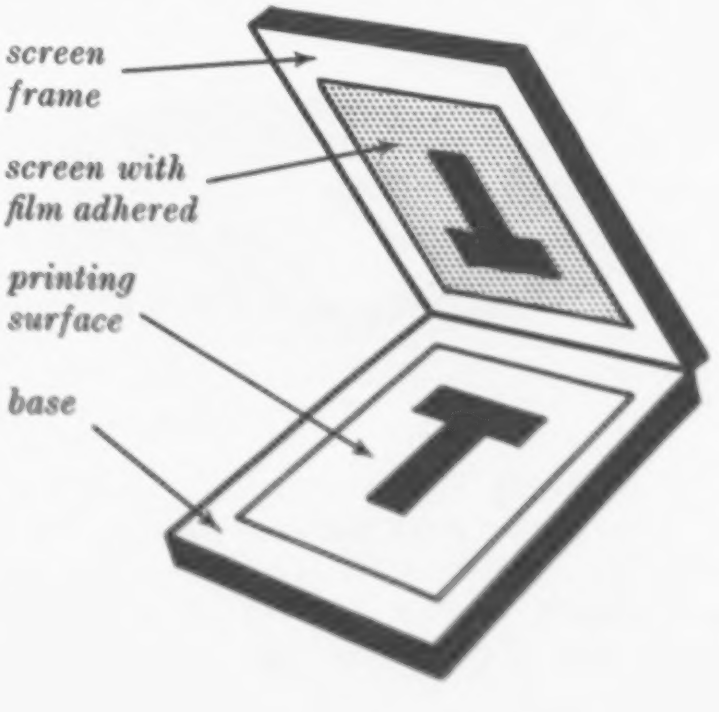
after drying, the backing paper is peeled away

After the stencil is completed, the screen is placed over the material to be printed and a squeegee (stiff rubber blade) is used to draw ink across the screen, forcing it through the mesh not blocked off by the film and onto the surface to be printed.

Printing with a squeegee


squeegee
ink
silk
film
printing surface

ink is drawn across the screen with a squeegee and is forced through the open film cuts to the printing surface


screen frame
screen with film adhered
printing surface
base

THE MINIATURE SILKSCREEN

Every art department occasionally has a job involving drawing a large number of similar or identical symbols on charts, exhibits, or posters. An artist with the Thai-American Audiovisual Service recently made ingenious use of a miniature silkscreen to save many hours of work on such an assignment.

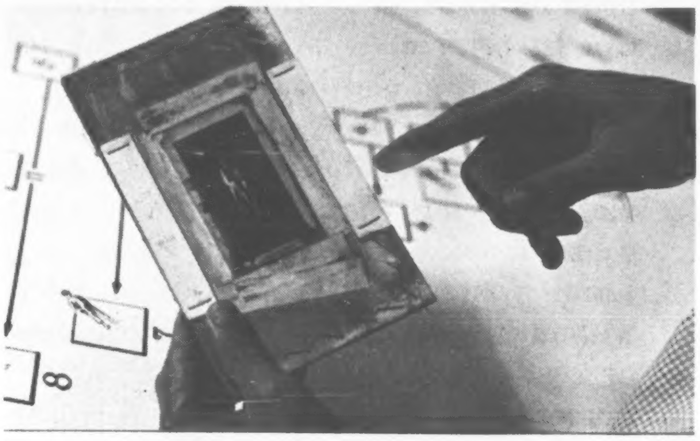
Vichien Ngarmpraphassorn has to prepare 25 diagrams showing how to maneuver bodies of police for training of Thai police under the Public Safety program in Thailand. A set of large classroom charts was needed, and these were to be reproduced both as a set of slides and as a series of illustrations for police demonstration meetings. Some of these involved as many as 35 identical figures of policemen in various formations.

Mr. Vichien handcut on green Pro-Film a figure of a policeman to the scale of the large wall charts. He cut a frame of 14-ply cardboard and stapled the silk (No. 12xx) to the frame. The stencil was adhered to the silk and the edges blocked out with stencil filler. Pinholes were blocked out and the underside of the stencil frame was built up with 14-ply cardboard so the screen would print off contact.

An ordinary rubber eraser was used as a squeegee, taking pains to see that the slightly rounded edge was straight. Dripping a little silk-screen ink or poster ink on the screen with an art brush, a test impression was made on waste paper.

Proper placement of the figure on the chart was insured by penciled guide lines at the corners of the stencil frame and the impression was made by using medium pressure, moving the eraser-squeegee slowly across the stencil.

The Thai-American Audiovisual Service, USOM/THAILAND, has made many uses of miniature screen stencils, for marking equipment, putting MSP emblems on book covers, etc.



Miniature frame with stencil ready for use.

Ink is spread across the stencil with an ordinary rubber eraser.

(Adapted from the Multiplier)

ADVANTAGES OF SILK SCREEN PRINTING

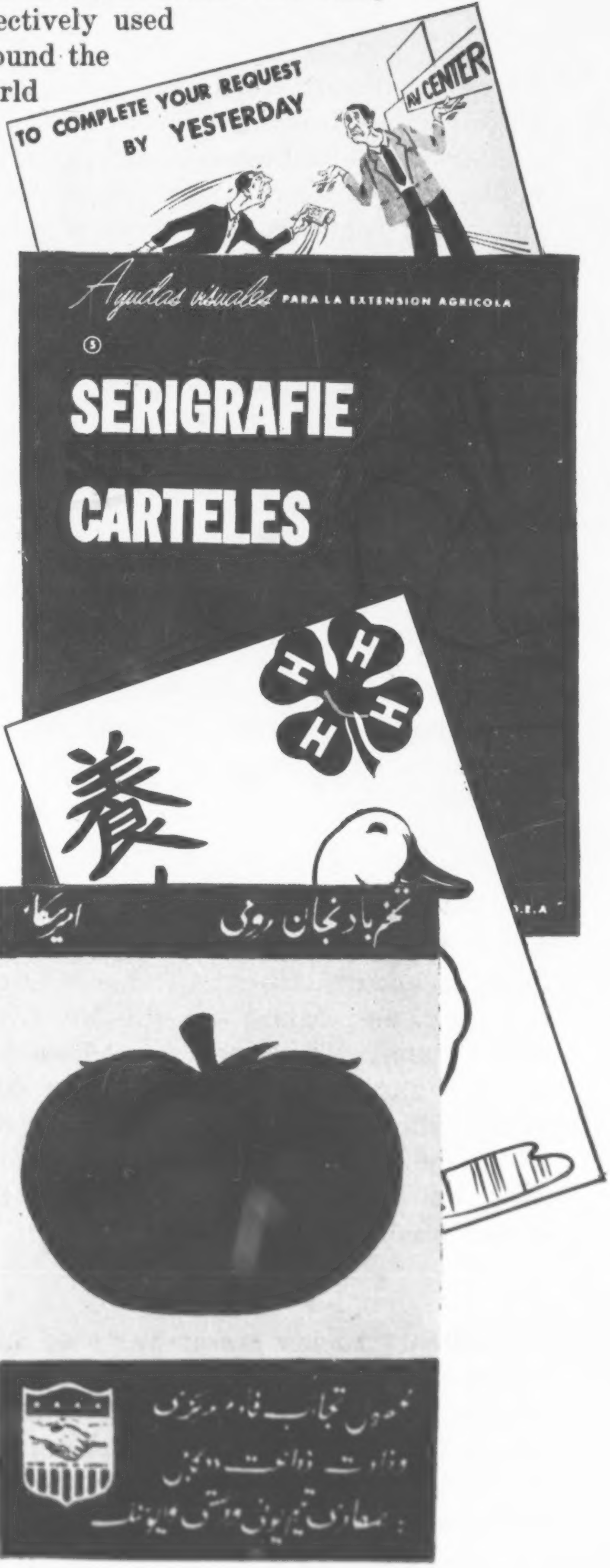
1. Paper, cutfilm and photographic stencils can be prepared with simple, inexpensive materials and require skills that can be developed in much less time than is necessary for most other printing processes.
2. The silk screen frame can be made locally, is portable and can be used to print on walls, etc. Almost all surfaces can be printed — wood, glass, fabric, metal, bottles, and boards.
3. The density of the ink layer makes it possible to print light colors over dark without being changed by the darker color.
4. Large posters can be printed in color without the expense of photoengravings or costly time on big presses.
5. Screens can be cleaned with solvents and used many times.

DISADVANTAGES OF SILK SCREEN PRINTING

1. Large areas must generally be provided for drying sheets individually as they cannot be stacked one upon the other immediately.
2. For large quantities, the process is much slower than letterpress or offset.
3. Inks, paints and stencils require considerable amounts of solvents for removal from screens and care and time must be used to maintain clean screens and working area.

NOTE: Much literature is available on the various silk screen processes. A number of such publications is listed in the HANDBOOK bibliography.

Silk screen materials are being effectively used around the world


TO COMPLETE YOUR REQUEST BY YESTERDAY
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امریکا

SILK SCREEN DRYING RACK

Drying freshly screened silk screen work is often a trying problem, particularly when the volume of production needed is large, or temperature and humidity slow down the drying time. Spreading posters out on existing floor space seems the cheapest solution, but the ever present hazard of a stiff breeze messing things up, plus cleanliness considerations, discourages this practice.

The silk screen rack illustrated and diagrammed in this article occupies nominal floor space, is easily put together from material available locally, and costs very little to make. It was designed and constructed by Mr. Coen Samuels, who is a Surinamer working with the Surinam-American Technical Cooperative Service.

On looking over the illustration of the drying rack, the operating principles are quite obvious. The framework consists of twenty-five frames that are hinged at the back, and spring-loaded with rubber bands to hold each individual rack up—or down—as needed. Each rack has been strung with a crisscross network of twine or plastic fishline to provide a surface on which to place freshly screened sheets. It is designed to permit a maximum passage of air through the rack. Usually the sheets to be dried are placed on successive layers of the racks—working from the bottom up. Without stacking, the rack shown is able to handle 50, 18 x 24 inch posters. If more are being printed, all the racks can be tilted up and fresh posters placed on top of those already in the rack. The first posters are usually dry enough to permit placing freshly screened posters on top of them—without risk of smearing them. Working again, from the bottom up, the process can be continued indefinitely—each layer having sufficient time to dry—so that successive layers can be added as needed.

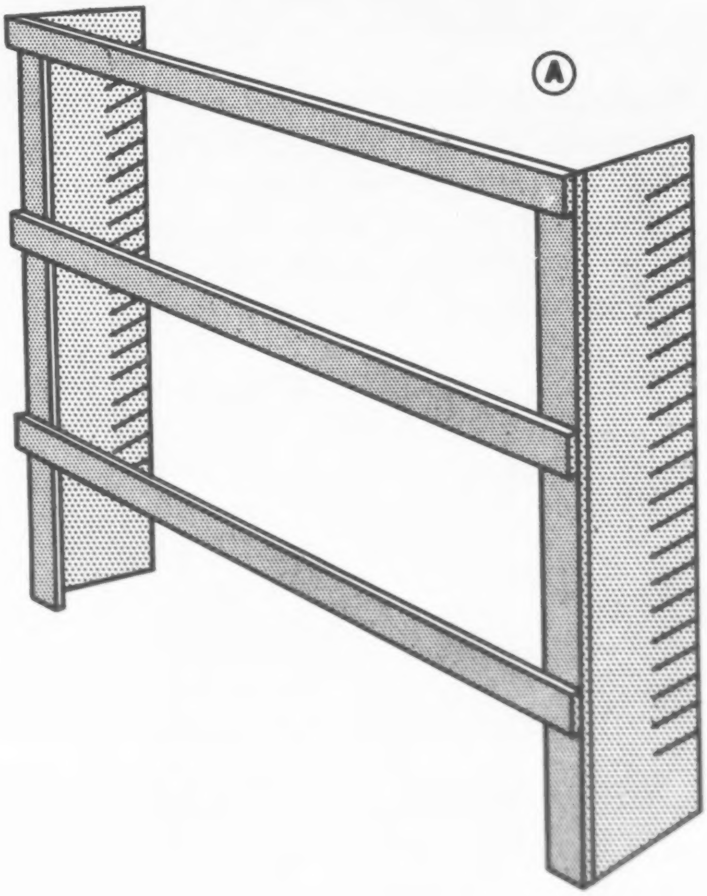


Diagram A indicates that the structure of the important parts of the drying rack body be made of 20mm plywood. Hard wood does not lend itself to such numerous cuts as needed in providing slots for the twenty-five frames. If hard wood is all that is available, wood of 25mm in thickness is suggested.

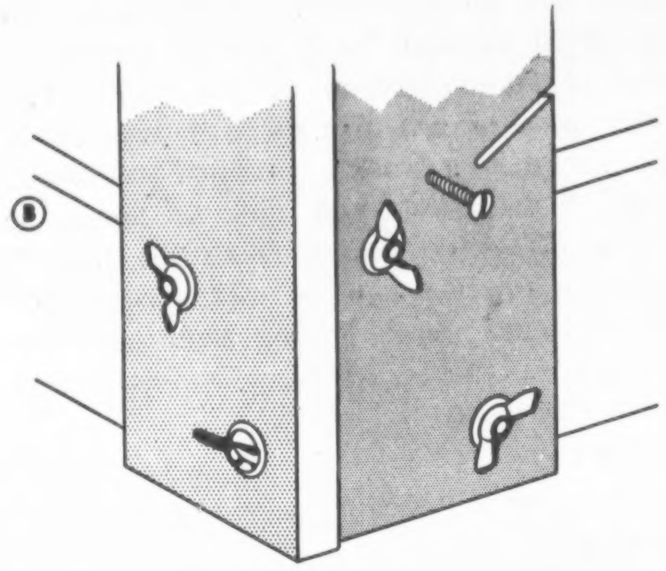


Diagram B shows the use of bolts and wing-nuts to hold the body of the drying rack together. If the rack is to be a permanent structure, it is best assembled using heavy wood screws—and all joining members glued, for greater strength.

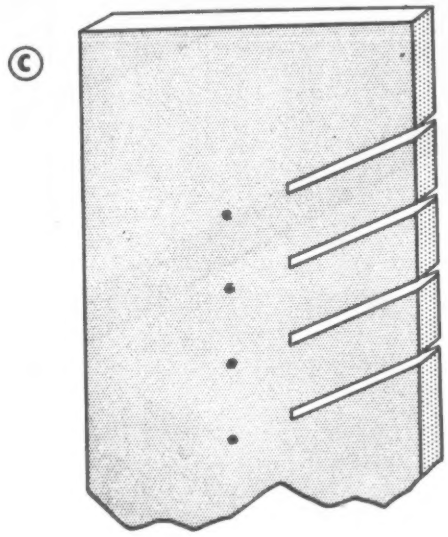


Diagram C describes the cutting necessary on the two side members of the drying rack body. Great care should be taken to be consistent in the slots for the drying frames. Equally important is the careful location of the mooring screws that are used, to which are affixed the rubber bands that afford each drying frame its spring action.

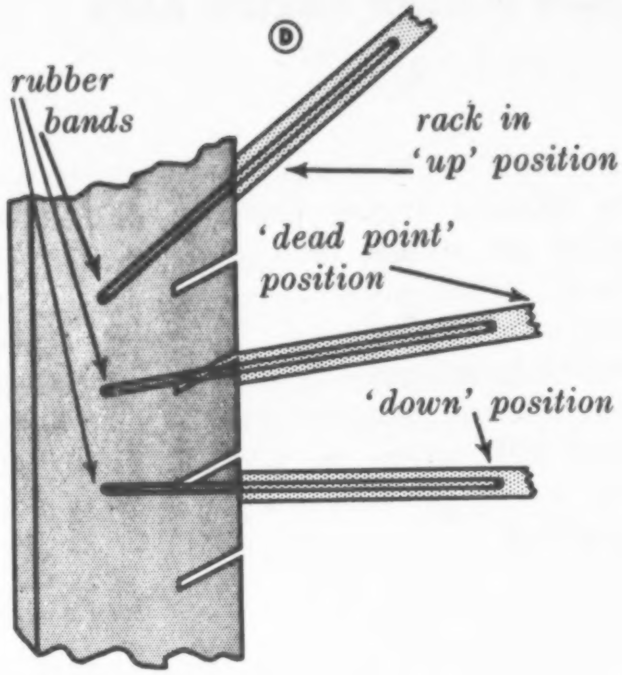


Diagram D provides a close-up view of this section to facilitate accurate placement of the mooring screws. This same diagram demonstrates the action afforded by this spring-loading of the hinge point between the individual frames and the body of the rack.

The purpose of spring-loading is to permit the raising of each frame to an elevated position — and keeping it raised, without the use of hooks, or other fixtures. As the diagram shows, when the frame is in the "up" position, the stress of the rubber band between points "a" and "b" acts upon point "c" (the hinge), so as to offset gravitation's pull—and thus hold the frame in the "up" position.

The screws employed in the function described above, should be embedded in the wood up to their shank — leaving approximately 15mm of exposed screw. In diagram A, the triangular-shaped block indicated by letter "a" should be carefully placed as indicated in the diagram so that the top drying frame rests at a 45° angle to the ground — when it is in its "up" position. When all the other drying frames are mounted in place, each of them will "fall in" to the same position, at the same angle of elevation, as dictated by the top frame.

Ⓔ

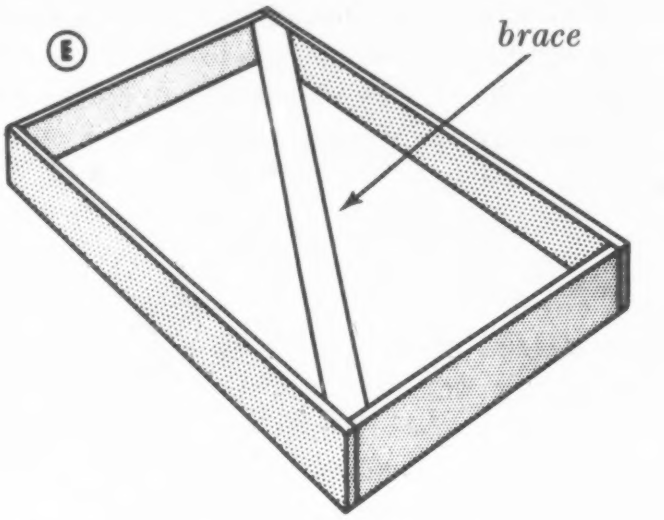
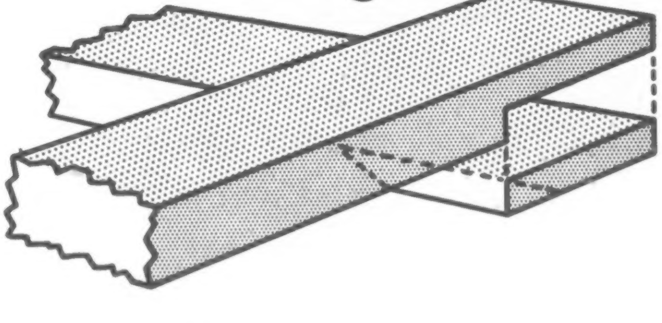


Diagram E gives the construction details for the foundation of the drying rack body and is self-explanatory. For mobility's sake you may wish to add castors to the foundation so it can be moved about freely.

Ⓕ

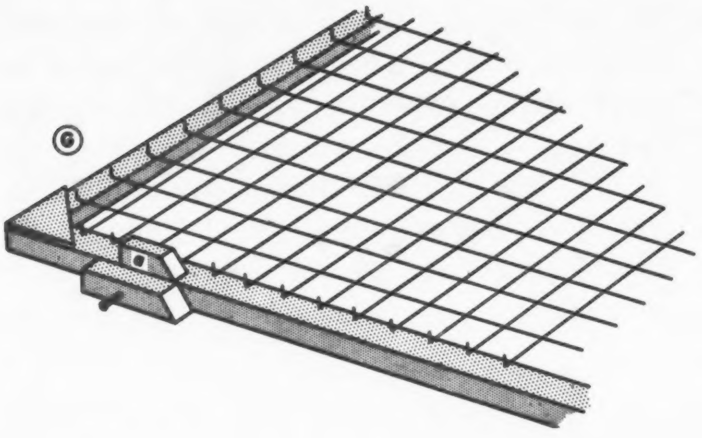


Because each of the frames in the drying rack will be strung with twine or a light mono-filament plastic fishing line, a certain amount of stress will be placed on its structure. A suitably light but sturdy wood should be employed—and the corners sturdily reinforced as indicated in diagram F.

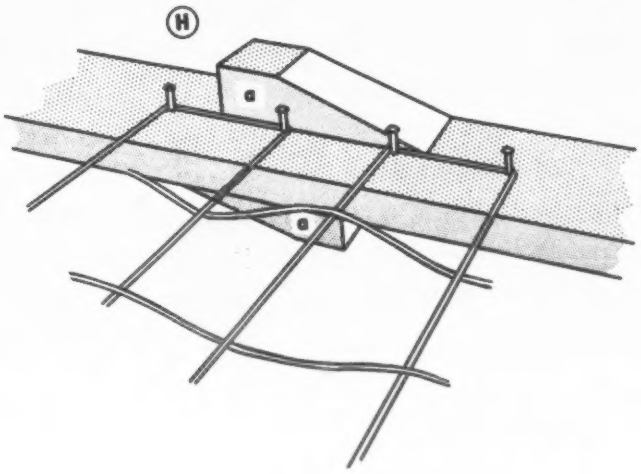
The rectangular frame is next strung with twine or plastic fishing line (the latter is preferable as it will be less likely to stretch and sag with the passage of time) to provide a perforated surface area on which freshly screened work can be placed to dry. The pattern shown serves only as a suggestion as to the amount of line needed.

Actually, the resulting squares formed can vary in size—depending on individual need and preference. It is best to remember that the larger the mesh the greater the risk of sagging because of the amount of stress that may be placed on the criss-crossed line. Small, ½ to ¾ inch brass nails are suggested—as shown in diagram H—for the anchor-points around which the interlaced line is passed. When the line has been strung, the nails can be tapped home. Be careful, however, not to sink them so deep as to sever the line.

The irregular-shaped blocks shown in diagrams G, H and J—designated by letter "a" — are wedges that serve to keep the frames apart—and parallel to each other—whether in the "up" or "down" position. Because one hundred of these blocks are needed, it may prove wise to preshape a length of lumber to the overall dimensions — including the angle shown — and then slice off each block in the manner of cutting bread. Consistency is assured by the use of this method. Whatever method of cutting is settled upon, be sure these blocks are well made to the specifications shown in diagram H, or the finished rack will be uneven in appearance.

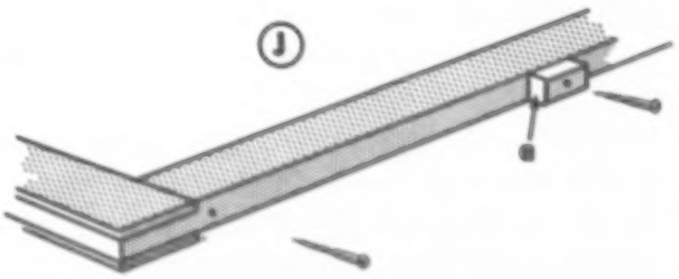


The hinge effect is accomplished by sinking two two-inch, # 5, brass screws into each frame — up to the shank — and then removing the screw heads with a saw. (This is shown in detail in diagram J.) These headless screws provide the bearing action when they rest in their appropriate slots, in the drying rack body. Be careful in driving these screws, to be sure they stand perpendicular to the frame's edge, or the screws will bind the action of the hinge in the drying rack body.



Large-sized rubber bands can be used for the spring-loading action of the frames. However, rubber bands can also be cut from balloon bicycle tires (about two-inch size), when rubber bands themselves are not available.

With the addition of a coat of paint—the drying rack is ready for use. Naturally, adjustments will be necessary, such as the possible addition of more rubber bands to each frame—but as the design and structure of the rack is simple, it will soon perform its important function.

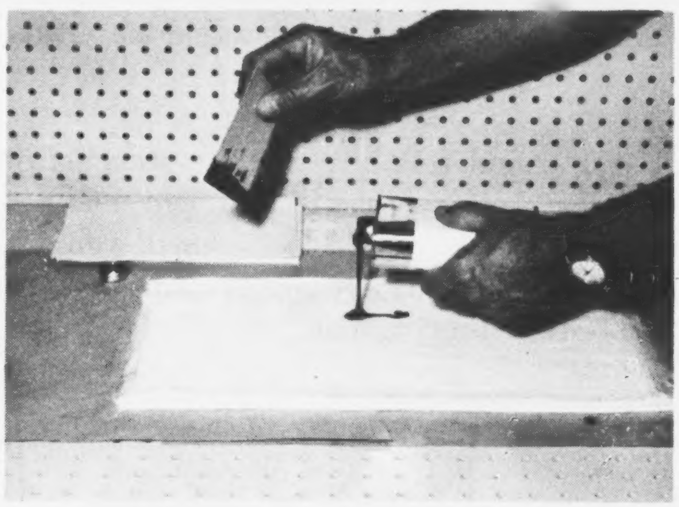


Construction of the silk screen rack is relatively simple. Each of the twenty-five drying frames is provided with a rubber band "spring-loaded" hinge at both sides of the joint where the frame is attached to the drying rack body. The total stress on the drying rack body, due to this "spring-loading", is very considerable, hence need for sturdy construction.

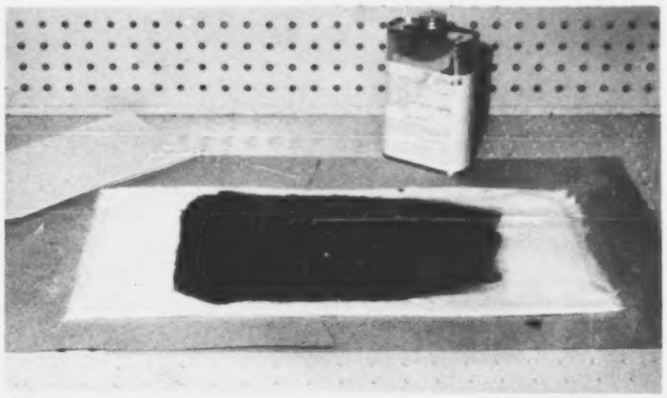
A SIMPLE METHOD FOR PRINTING STENCILS

In situations where duplicating machines may not be available it is possible to print small quantities of simple materials from Mimeograph or Gestetner stencils in the following manner:

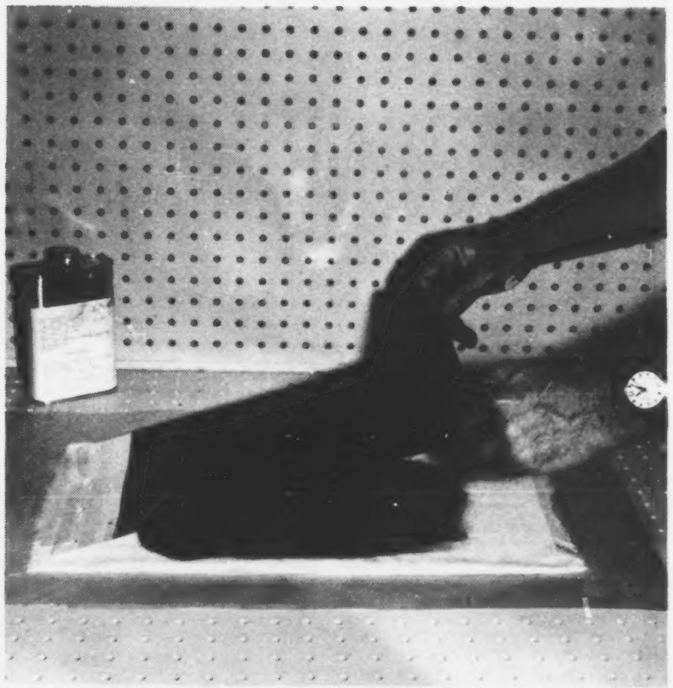
1. Place several layers of absorbent fabric (cheap flannel or felt) on a flat surface. The material should be somewhat larger than the stencil being used and should be placed on heavy paper to protect the table from ink.



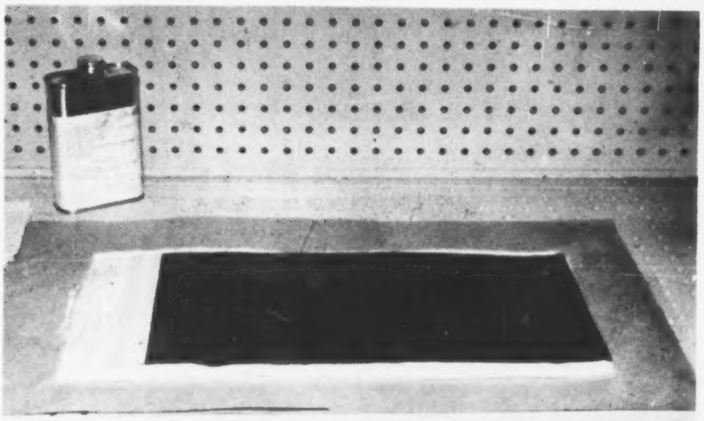
2. Mark off on the material with a pencil the approximate size of the printing area and then saturate this area with Mimeograph or Gestetner ink. News ink used by printers should also work satisfactorily. Spread the ink evenly with a piece of cardboard.



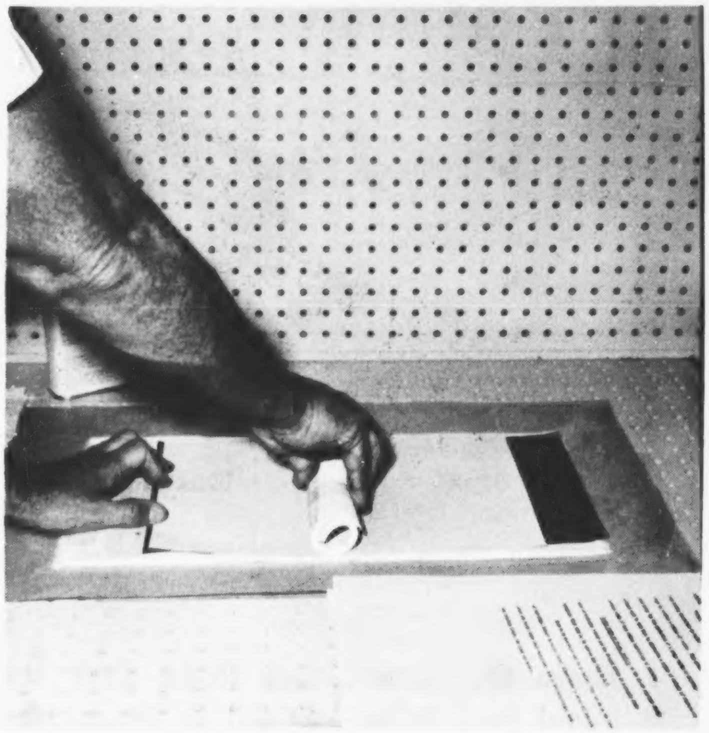
3. It is important that an even layer of ink be applied, otherwise spotty printing will result. Some experimentation will help determine the correct saturation needed.



4. Place the stencil face down over the inked pad, being careful to center the printing area, and avoiding wrinkles in the stencil. Tape the head to the working surface to hold it in place.



NOTE: Placing the stencil on the cloth smoothly is very important because it will assure getting good prints, and getting them in larger numbers.

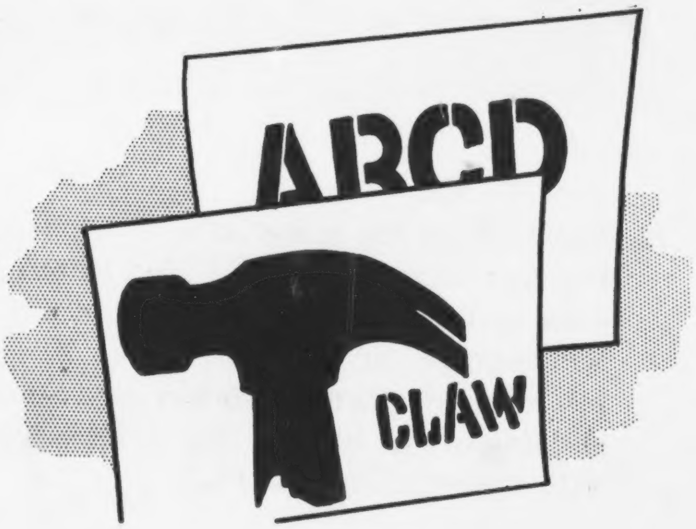


5. Place each sheet to be printed over the printing area and, while holding the sheet in place at the margin, apply pressure over the printing area, always moving the pressure away from the held margin. In the illustration a magazine was rolled and taped and then pressed across the surface. A rubber rôller (brayer), cloth pad, or similar device could be used also. Again some experimentation will help to get the most satisfactory results. One inking should be sufficient for 20 or more copies.

Stencils are prepared in the conventional manner. Rural schools, agricultural stations and other groups using small numbers of duplicated materials may find the process applicable.

There are other ways in which you can use this process in making stenciled materials.

Using commercially cut letter stencils, or handcut letter stencils you can make a number of pages of letters which you can cut from as needs arise to prepare posters, charts or other visuals.



Silhouette cutouts of objects can be made for limited handout material following demonstrations.

THE PORTABLE HAND-OPERATED MIMEOGRAPH

There are many situations within a country-wide development program where trainers, health educators, extension agents, teachers and others have need of a mimeograph machine, but funds are not available to purchase a commercial one. A very satisfactory mimeograph can be made by anyone with any manual skill. The basic design for this duplicating machine has been followed for years in many parts of the world.

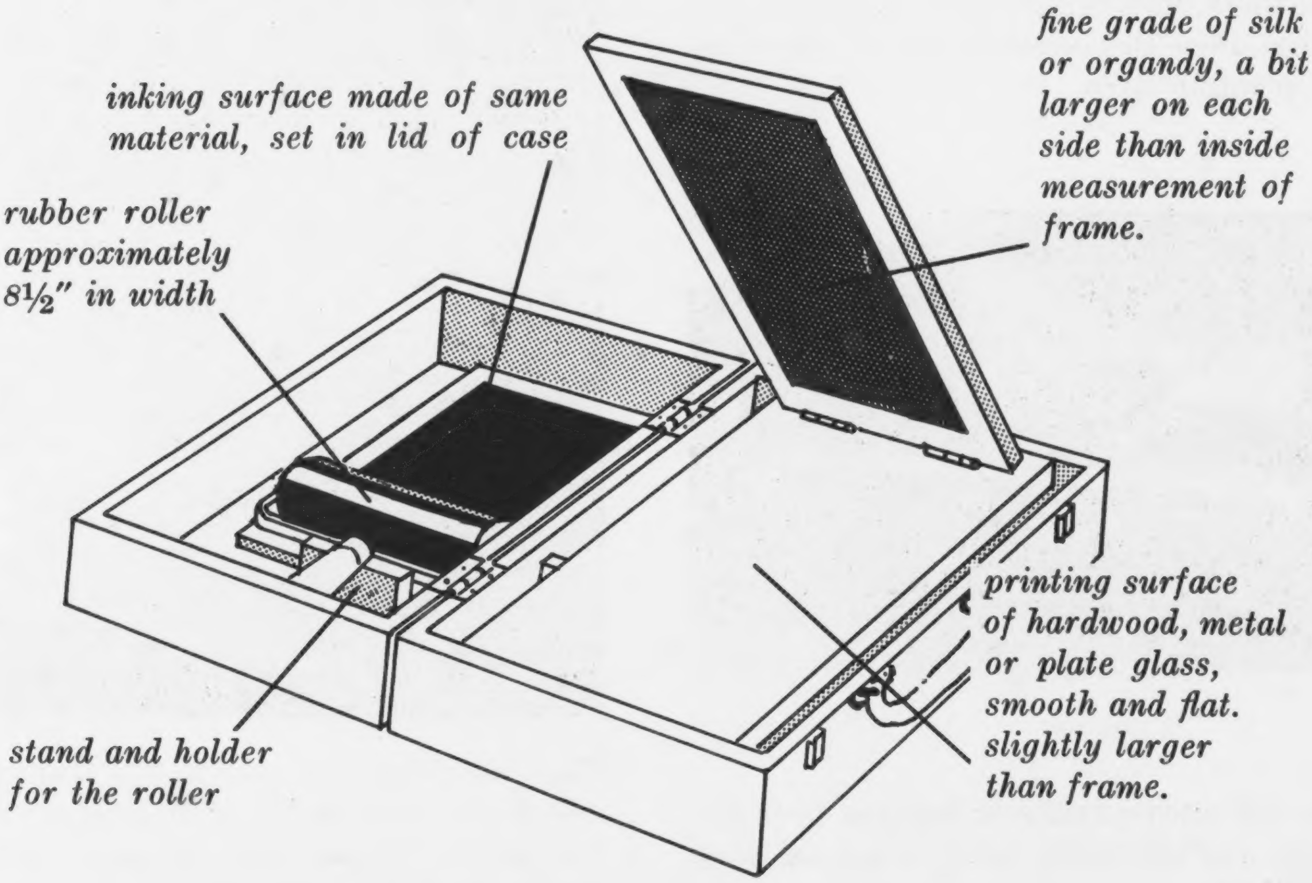
You may find many uses for this inexpensive and easy-to-make machine in your program.

It Has Been Used!

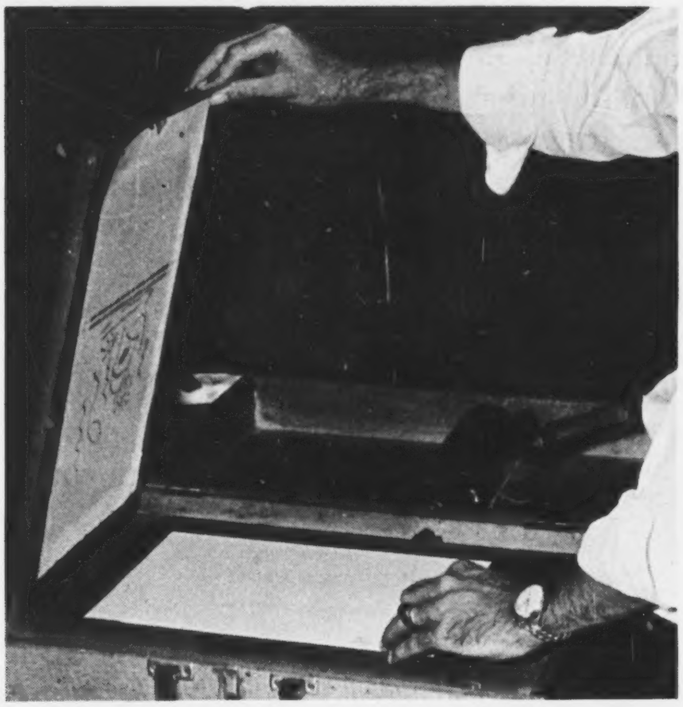
Often, extension agents working in small communities do not have access to mimeograph or other commercial equipment for duplicating.

To solve this problem, the Communications Media Office, USOM/Brazil turned to the portable hand-operated mimeograph.

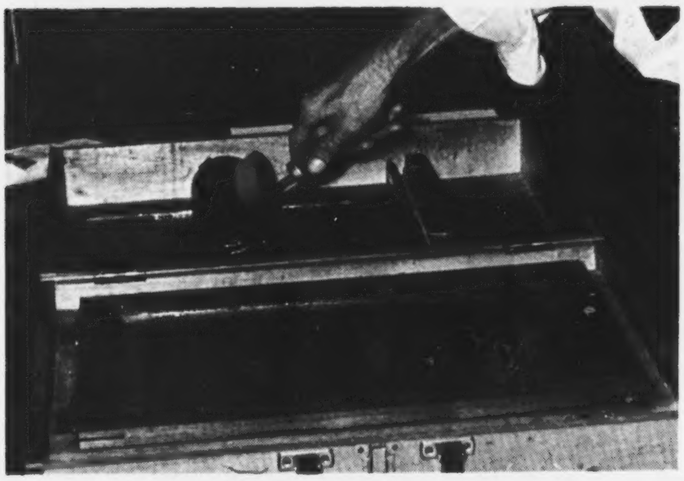
Now, this easy-to-make device is being utilized in extension offices all over Brazil. It is becoming useful in schools and other fields of activity where people need practical and economical visual aids which can be duplicated.


inking surface made of same material, set in lid of case
rubber roller approximately 8½" in width
fine grade of silk or organdy, a bit larger on each side than inside measurement of frame.
stand and holder for the roller
printing surface of hardwood, metal or plate glass, smooth and flat. slightly larger than frame.

HOW TO USE THE PORTABLE HAND-OPERATED MIMEOGRAPH

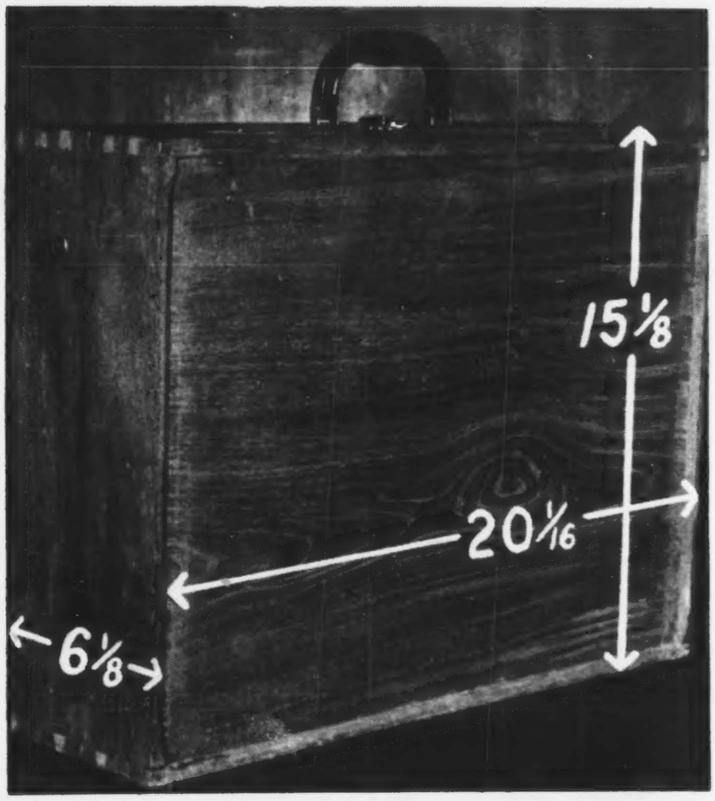


The stencil is placed under the silk and held there with Scotch tape or similar adhesive, then the paper is set in place on the printing area.



The silk screen frame is lowered over the paper and the inked roller is passed back and forth.

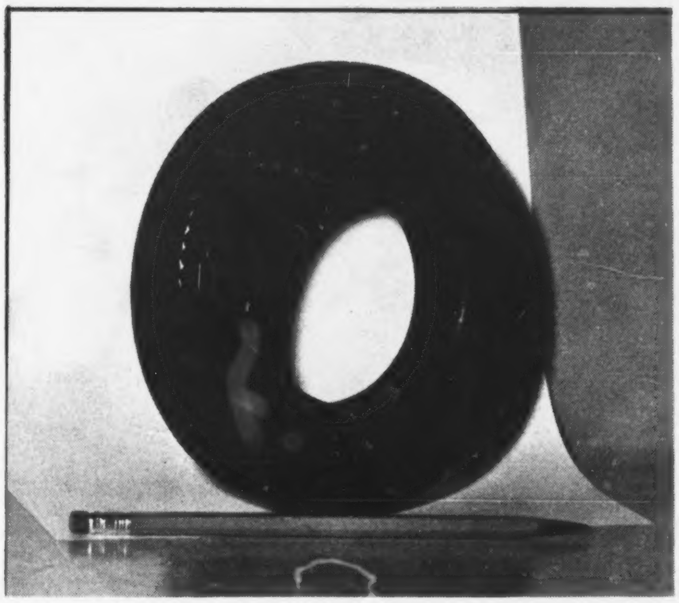
The principle of the Portable Hand-Operated Mimeograph is similar to the silk screen process. Ink such as GESTETNER



The original article used in the Multiplier was contributed by Mr. M. J. Santos Filho, Production Supervisor, Communications Media Staff, USOM/BRAZIL.

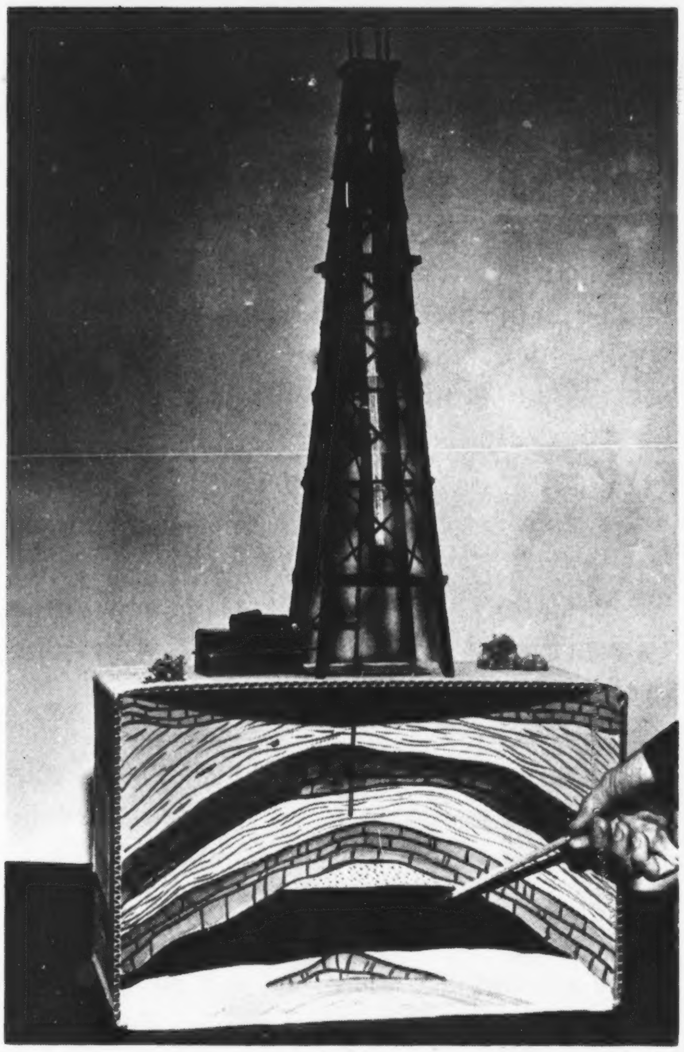
YOU CAN MAKE A MODEL

There are several kinds of models which can be effectively used in demonstrations or situations where you wish to show parts of objects or processes. Briefly, we may describe the following kinds of models:



Reduced or Enlarged Models

These kinds of models are made to scale in exact proportion to the original objects. Reduced models are often useful in making sand-table exhibits, to show vast expanses of land, large buildings, etc.

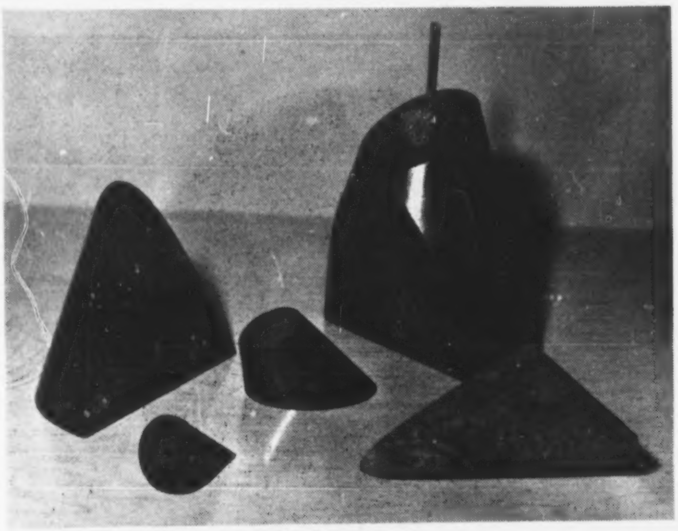


Cutaway Model

Viewers can see cutaway sections of models and still recognize the object, since just a portion has been removed.

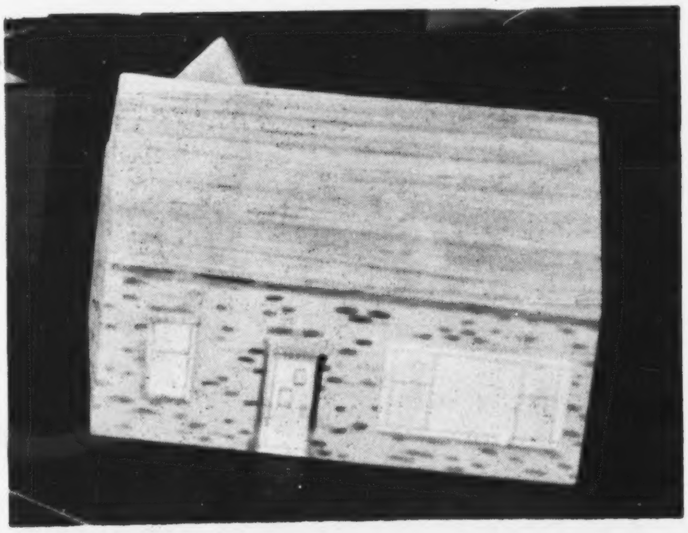
Exact Model

Represents objects in both size and detail and sometimes substitutes for real objects which are rare, expensive or breakable.



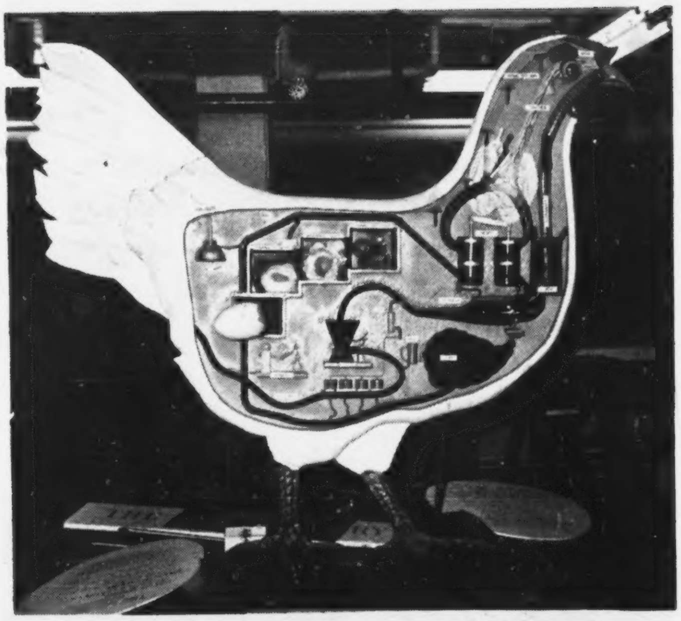
Build-up Model

These models are made of several parts which fit together, forming an object. The parts are models and when placed properly form a whole model, or recognizable object. Excellent for demonstrating functions and relationships of parts to the whole.



Solid Model

Only concerned with external features of objects. Weight, size, texture or coloring may be specific features of these models. It may be an exact model or a scaled one.



Working Model

External features of the model are included, but the model has working parts with which the teacher can demonstrate and which students or other viewers can also operate.

Some Important Things to Remember About Models:

They should be sturdy if they are going to be carried from place to place or handled by large numbers of people.

They must be convincing. The shape and details of the parts must be recognizable, as well as being understood.

They should be large enough so that the group viewing them can all see the object during demonstrations, yet small enough so that the object can be handled easily by the demonstrator. Large models can sometimes be carried in parts and then assembled before the demonstration.

MODELS CAN BE MADE FROM MANY KINDS OF MATERIALS:

They can be made from

paper
cardboard
balsa wood
clay
wood
rubber
metal
plastic
plaster
papier mache
toys
cork

Some Suggestions for Using Models

Explanation of the model should be given to the viewers before it is used . . . To help you with the explanations, you might use a blackboard, a drawing, diagrams, films, photographs, or other visuals.

Viewers should be told why the model is being used, what to look for and how they can apply the knowledge they will gain for later activities.

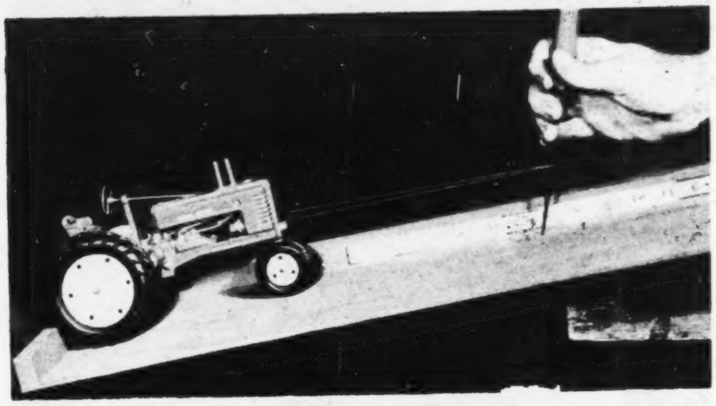
Don't let other visuals or other models distract from the model that you are using.

The model and demonstration should not be an end to the learning process. Discussion, question periods, and further demonstrations can be used to advantage. Even repeated demonstrations using the same model, or permitting the viewers to handle the model, will make their understanding better.

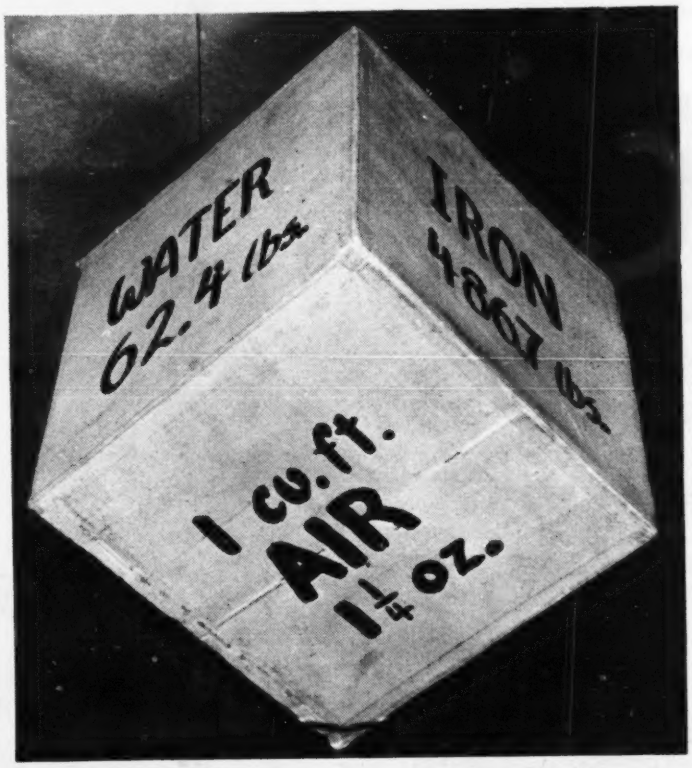
Many commercial companies produce models of their equipment. Sometimes these are given away, loaned or may be purchased.

AND REMEMBER, that of the many visual aids you can make, models give you an opportunity to make use of three-dimensional effects!

TWO EXAMPLES OF EFFECTIVE MODELS

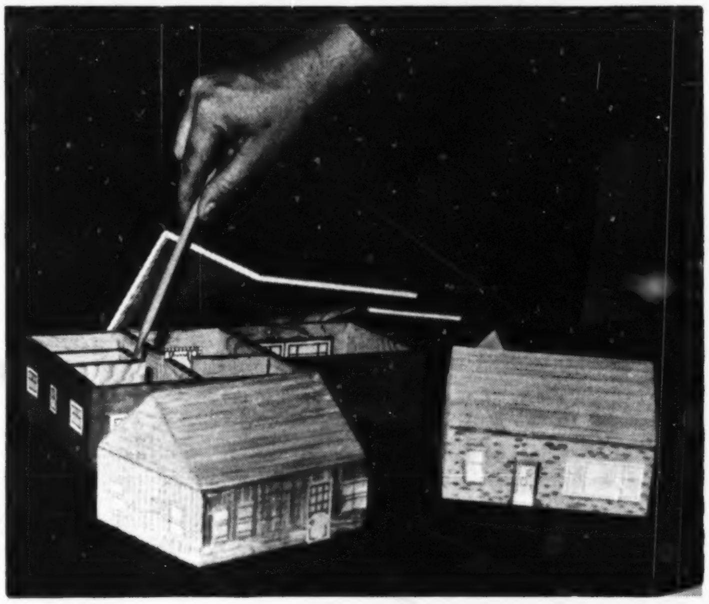


Scale models of machinery or equipment, like the tractor shown here, may be useful not only for demonstrations, but also as parts of sandtable exhibits.

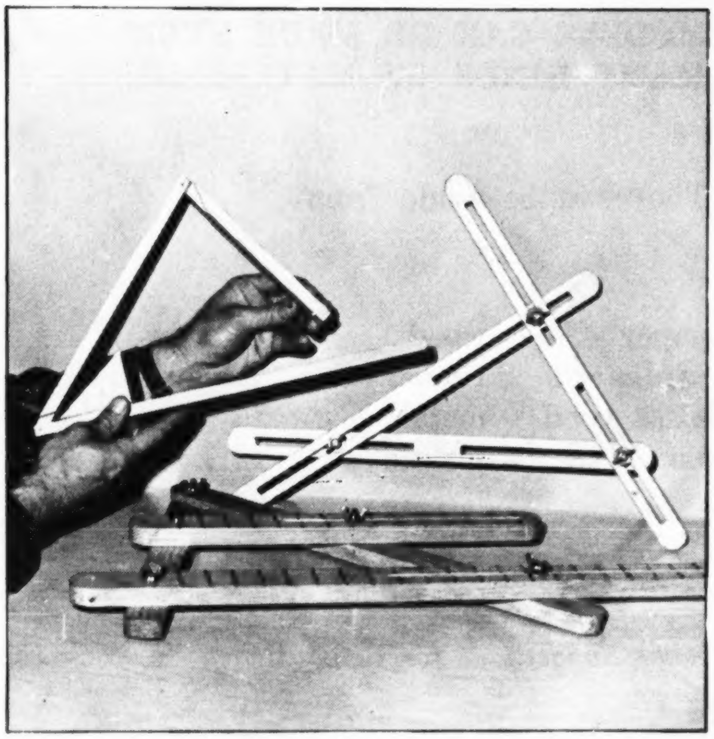


A science instructor in educational television wanted to show his students the relative weights of solids and gases. He devised this excellent model by painting a square cardboard box white and then printing the information on the sides.

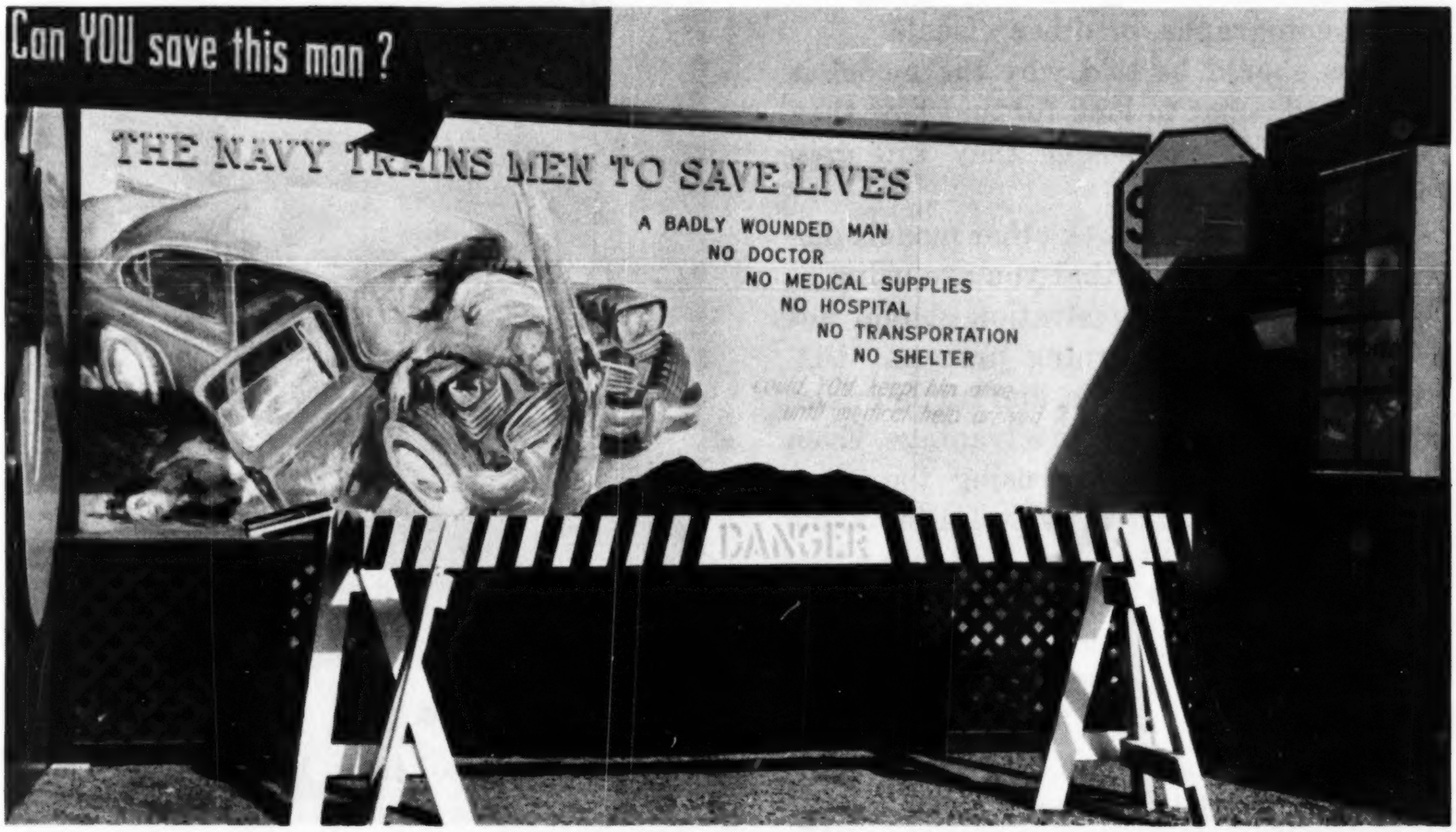
MORE EXAMPLES OF MODELS:



The roof of this house model can be removed so that the partitions of the rooms can be seen. Such models are useful for determining room sizes, wiring, plumbing, and furniture placement.



Mathematical models such as these are useful in teaching theory and measurement of various geometric figures.


Can YOU save this man ?
THE NAVY TRAINS MEN TO SAVE LIVES
A BADLY WOUNDED MAN
NO DOCTOR
NO MEDICAL SUPPLIES
NO HOSPITAL
NO TRANSPORTATION
NO SHELTER
DANGER

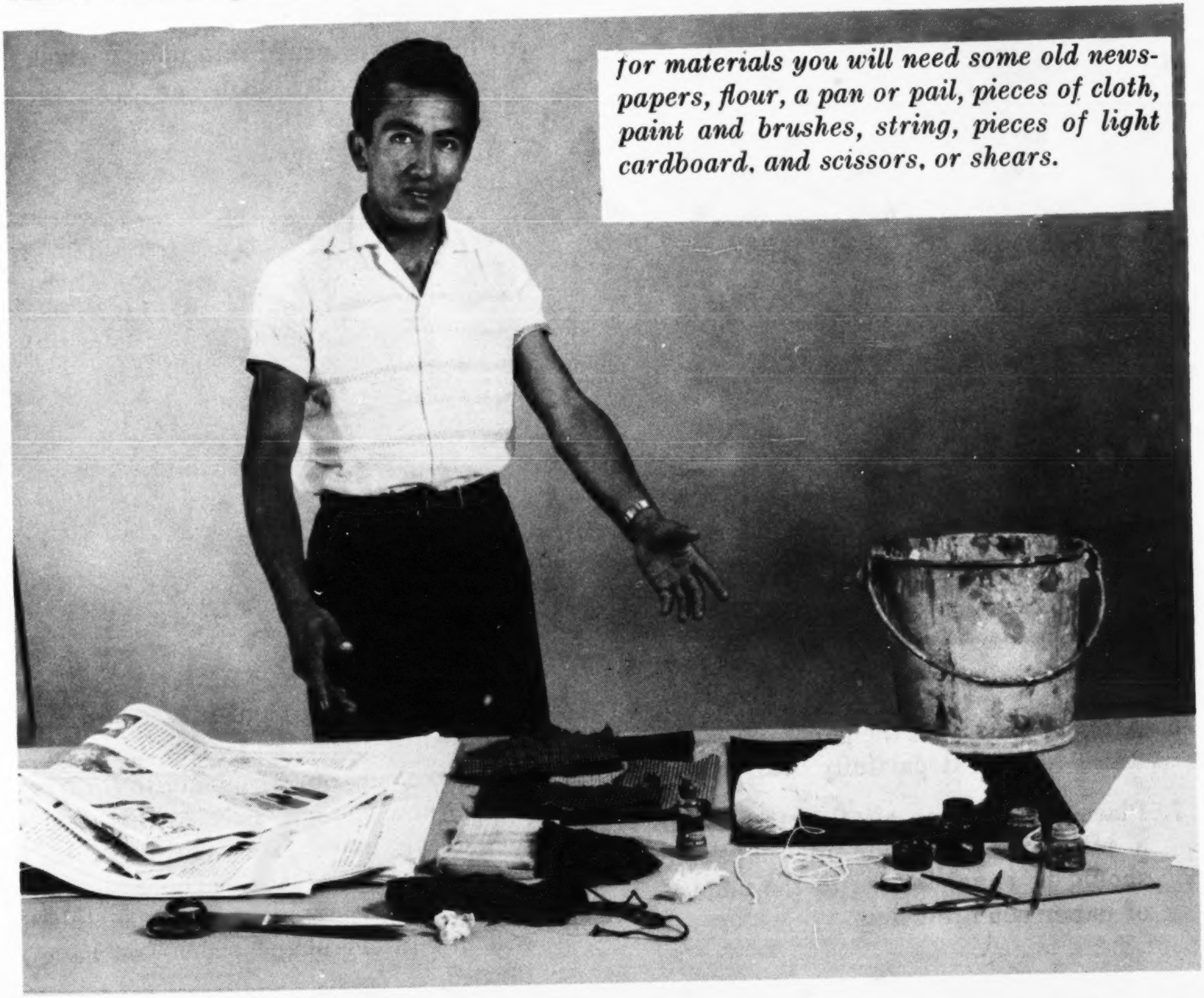
The models of the danger barrier and the stop sign add realism to this exhibit designed to motivate first aid training.

YOU CAN MAKE PUPPETS

Puppets are useful in education, self-expression and in motivating people to do new things. The audience can learn as it looks and listens.

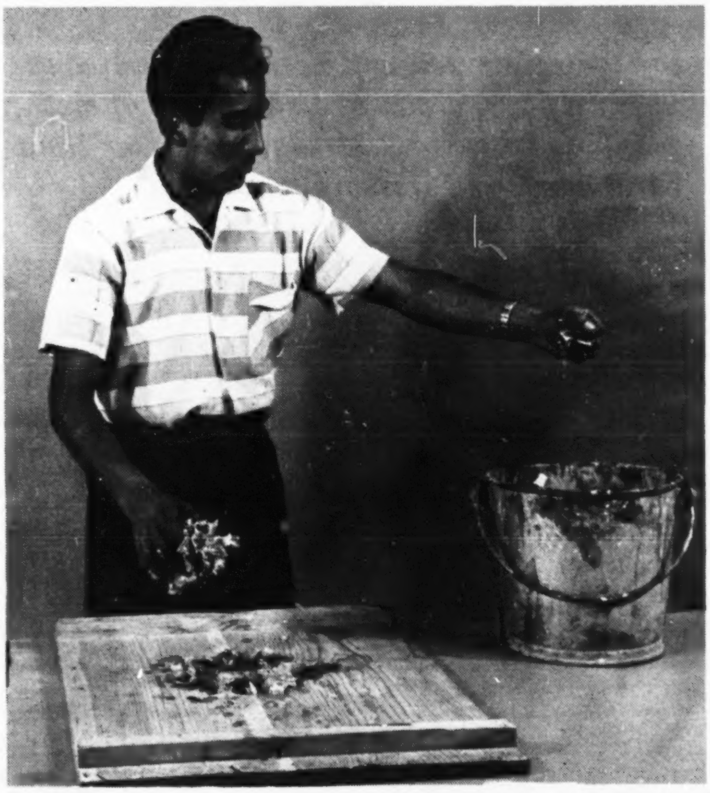
Materials needed for the making of puppets can be found in most cities or villages around the world. You start by planning what you want to do with your puppet. You may need one or more puppets to tell your story. Decide which characters you wish to make and proceed as follows:

puppets like these can provide children and adults with realistic experiences.



for materials you will need some old newspapers, flour, a pan or pail, pieces of cloth, paint and brushes, string, pieces of light cardboard, and scissors, or shears.

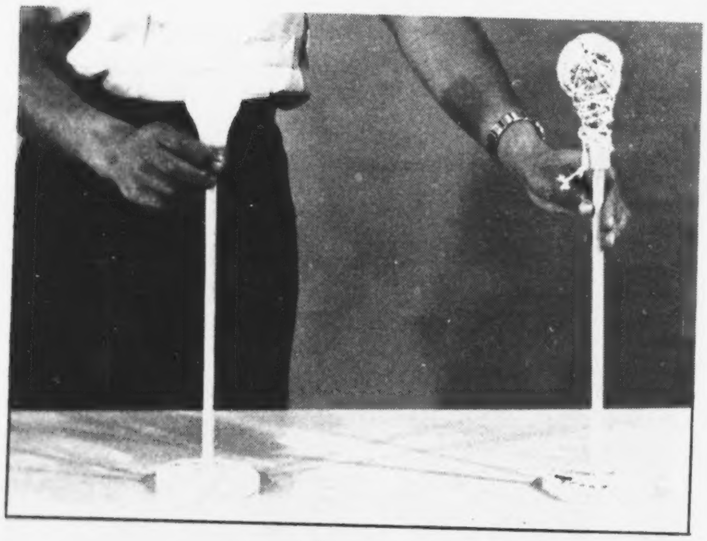
1. Tear or cut the newspaper into thin strips.
2. Tear or cut these strips into small pieces.
3. Put a spoonful of alum into a bucket of cold water to keep the newspaper fresh.
4. Place the pile of torn up newspaper into the bucket and stir it in the water so that it is well soaked.
5. Leave the paper in the water for at least 24 hours.



6. After 24 hours, lift the paper out of the water and let it partially drain.
7. Place the paper on a flat surface. Pour a pile of flour beside the paper—it should be equal in size to the amount of paper you are using.

8. Mix the flour and the soaked paper until they have turned into dough which will stick to your hands.

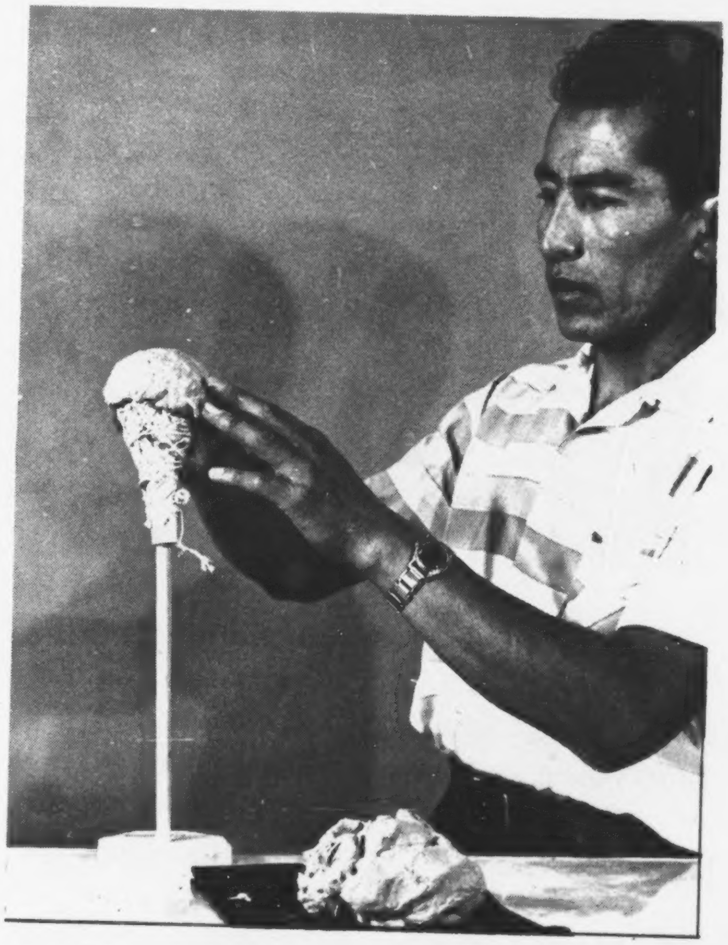
9. Cut the thin cardboard to approximately 10 x 15 cm. and wrap this cardboard around your forefinger to form a tube. Allow enough space so that your finger can move freely in the tube. Glue the edge of the cardboard and wrap it with string so that the tube will dry in the shape which you have formed.



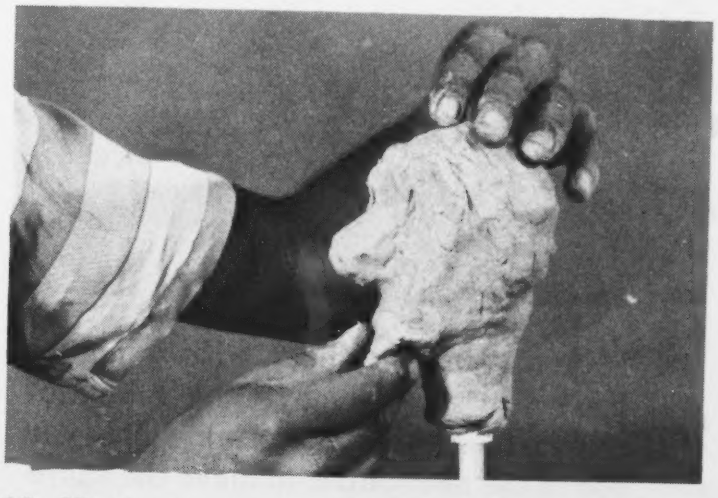
10. You will need a stand or a support for the puppet head. This can be made by a stick fastened to a wooden base, or by a bottle filled with sand.

The stand or support which you make will not only be needed when you make the head of the puppet, but it will be useful later as a rack for storing the puppet when you are not using it.

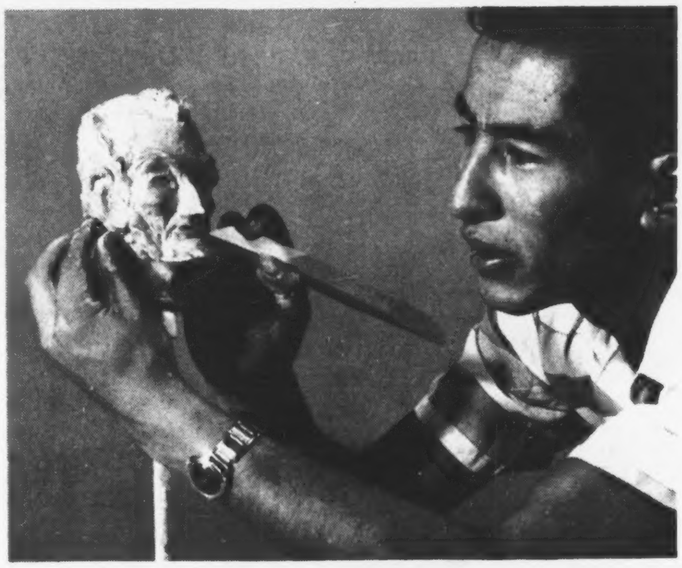
11. You may use burned out light bulbs, gourds, or similar materials for the inside shape of the puppet head. To make a hollow head you should spread half of a newspaper on a flat surface and make a pile of wood shavings, sawdust, small pieces of paper or cotton the size you want. Then wrap the material in the newspaper and tie the end of it to the tube which you have prepared. It is advisable to wrap string several times around the newspaper after you have formed the shape as this will help to keep the newspaper firm and it will be easier to handle.



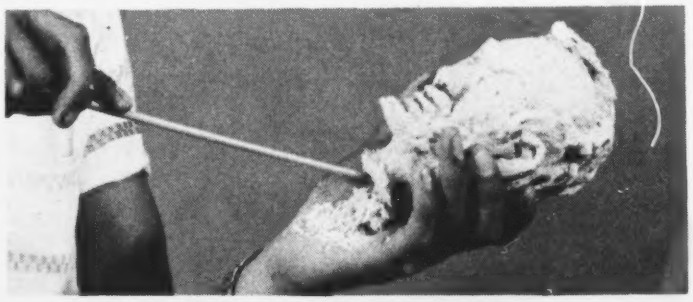
12. Place the tube and the shaped newspaper on your support and start applying a thin surface of the papier-mache. During this step you can start to shape the head of the puppet.



13. Next, you can make cheeks, ears, nose, eyes, lips and chin from the papier-mache and place these on the head in their correct position.

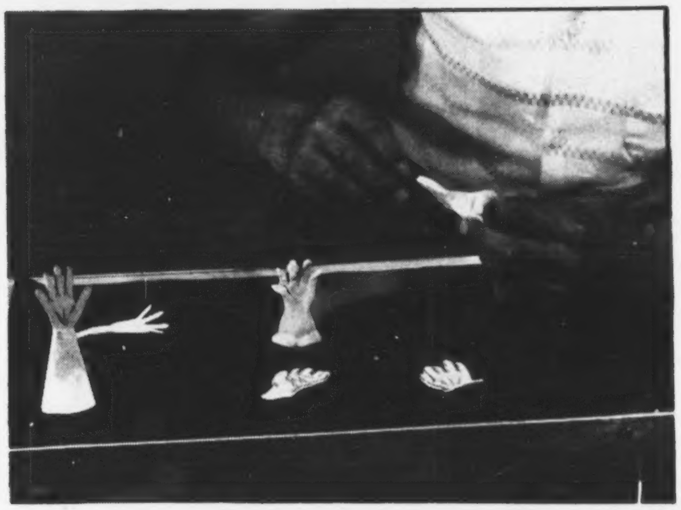


14. Details of the facial features of the puppet can now be made with a spatula, a pencil, or any pointed material.
15. You may want to make eyes of pieces of glass, dry beans or dry corn, small sea shells or other shiny material which might resemble an eye.
16. Leave the head on the support so that it can dry thoroughly.
17. As soon as the puppet head is thoroughly dry you may remove it from the support.

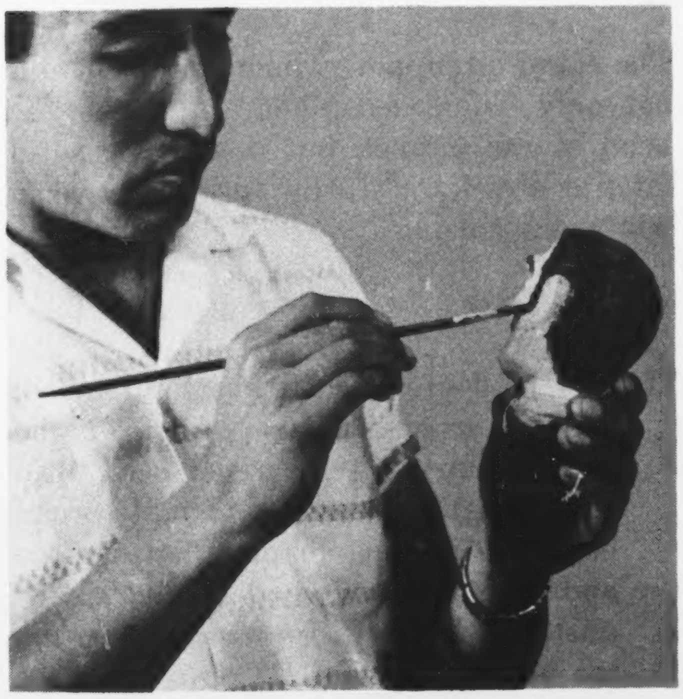


18. If you have a puppet with a hollow head you may remove the filling of sawdust or other material which you put in the newspaper to make the shape you want, by forcing it out of the neck of the puppet with a screw driver, a pencil, a thin stick of wood or a piece of wire.

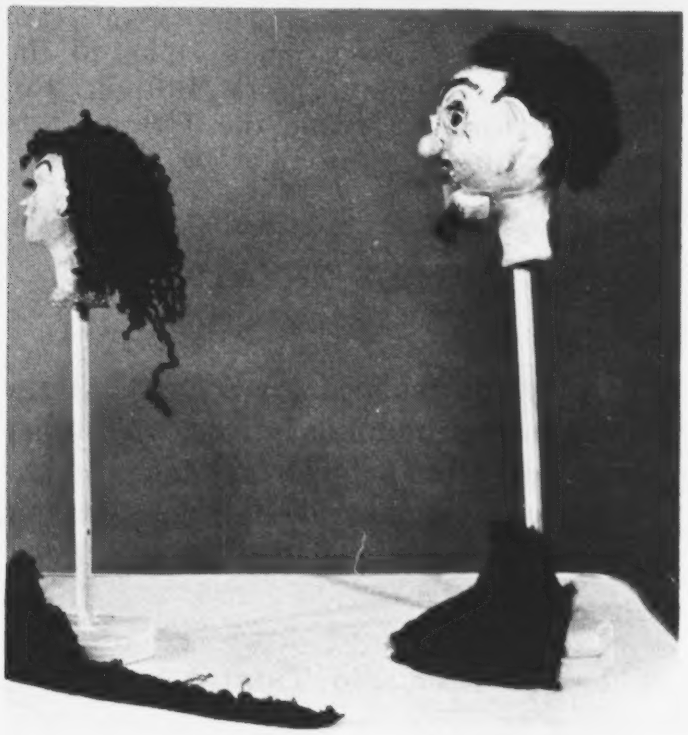
19. Using fine sandpaper you now rub the puppet head until it is smooth.



20. Hands for the puppet may be made with the papier-mache. You may make a small tube which will fit the fingers or shape a tube from the dough.

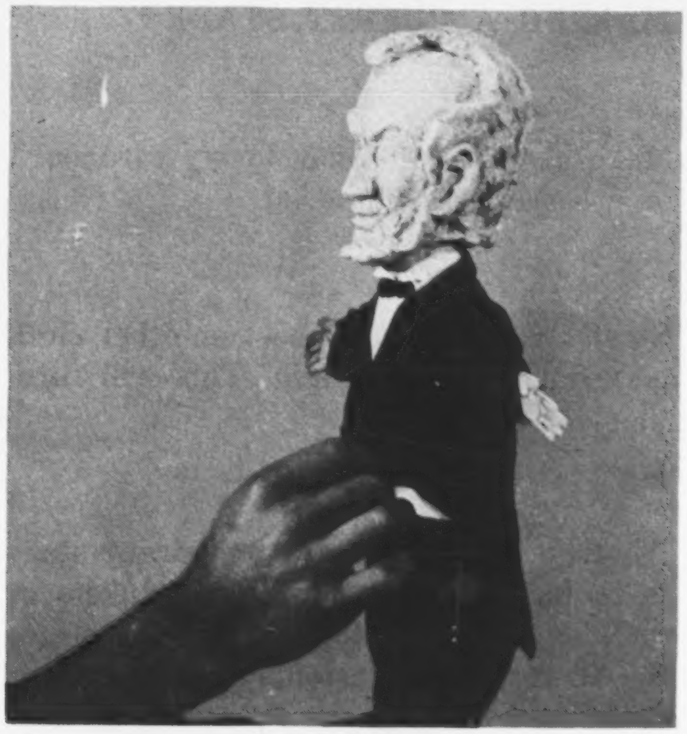


21. Now you are ready to paint the puppet's head and you may use tempera or water color, and artists brushes. A little practice with the painting will give you natural colors to the different sections of the head.

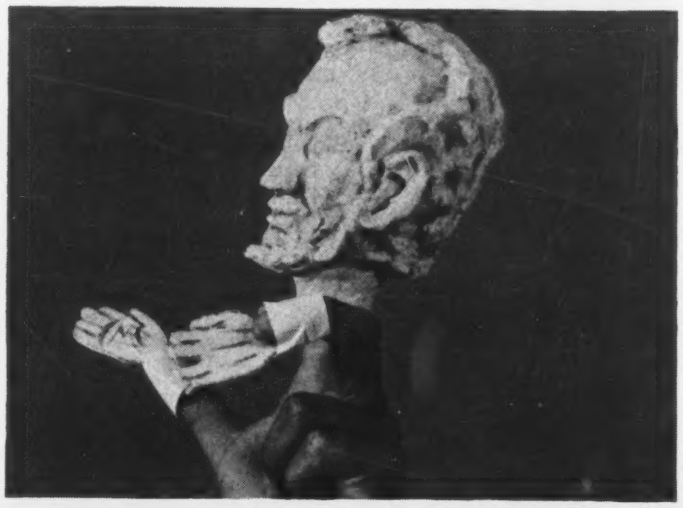


22. Hair for the puppet may be painted on, or you may want to use frayed twine, rope or cord, old pieces of fur or dustmops. If you are using any of the above material, you could dye the material in any colors you want. Hair can be fitted on the puppet head with glue or other adhesive.

23. You may use cloth to make a costume for the puppet. The cloth should be about 40 cm. long so that it will reach to your elbow. You may wish to make a pull string at the neck of the cloth which can be tied to the neck of the puppet. By using this method you can make a number of costumes.



24. When the clothes of the puppet are finished, they can be fastened to the neck and arms of the puppet with glue, paste or other adhesive material.



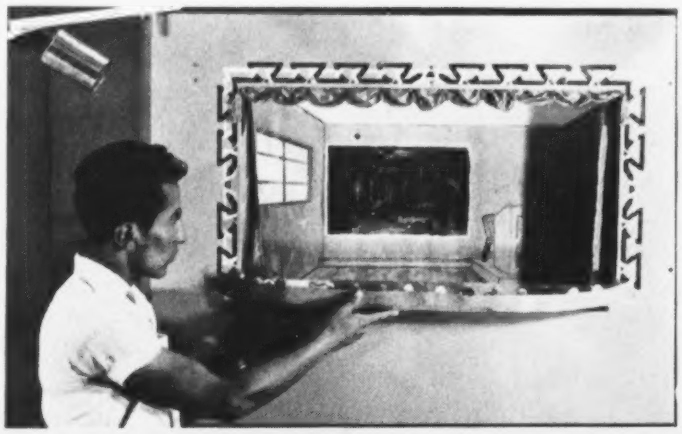
The puppet is manipulated by placing the head on the index finger and the puppet hands on the thumb and middle finger. With a little practice the action of the puppets will become realistic.

MAKING A PUPPET STAGE

Make a frame of wood, heavy cardboard or other upright material.

Stretch and fasten a sheet or other cloth material to each upright. This will form the floor of the stage.

Another way to make a temporary stage is to fasten sheets, curtains, blankets or rugs over tables which have been placed on their side. Fastening the material from the bottom of one leg across the face of the table to the bottom of the leg opposite, will prevent the viewers from seeing the person who is operating the puppets.



More permanent puppet stages such as the one shown here can easily be constructed with plywood or similar material. Backdrops can be painted on cardboard or curtains. Lights can be provided for the stage, using tin cans as reflectors and a curtain can be made to cover the stage. The background for the stage shown here was to represent a school room scene.

(All photographs used for "You Can Make Puppets" are from the files of the Audio Visual Center, USOM/Bolivia. Rodolfo Betancourt from the Center was demonstrator for these photographs.)

MOBILE PUPPET THEATRES

The plays on malaria eradication, on the importance of building latrines, and other health education subjects are taken to the people by a mobile traveling puppet show which goes out into distant rural regions.

While the Esculapio Theatre is devoted entirely to plays on health education subjects, there are some 40 puppet theatres in Mexico. As part of their cultural heritage, the puppet theatre has great appeal to the Mexican people and for that reason is an effective medium of education. In some areas of Mexico, agricultural extension workers and private groups have used them to bring useful information to farmers.

"ESCULAPIO"
TEATRO DE MUÑECOS ANIMADOS
DIRECCION DE EDUCACION HIGIENICA

the people who take this mobile puppet theatre into rural Mexico are helping their countrymen toward better health.

(Adapted from the Multiplier, April 1958.)

In 1958 a communications seminar was held at Belo Horizonte, Brazil. There, several students planned and developed puppet plays as well as making puppets.

The course which these students received included the historic development of puppetry, its uses in education and audio visual methods, experience in script writing and acting, as well as techniques of making puppets.

Here are a few examples of puppet plays which were planned and written at the seminar.

HOW GOOD IT IS TO SPRAY OUR HOUSES, by Ligia Rocha (Brazil). Theme: Malaria Eradication. Explains how the malaria mosquito threatens a household; how the woman of the house calls the sprayman who then sprays the house and the mosquitoes die, defeated by the insecticide.

NOT ALL IS LAZINESS, by Maria Auxiliadora Galvao (Brazil). Explains the functions of the doctor and health educator in rural areas.

GOOD FOOD IS HEALTH, by Heloisa Banks Monteiro (Brazil). Describes the benefits of eating foods of complete vitamin balance in rural areas.

LITTLE RED RIDINGHOOD, by Nila de Souza e Silva (Brazil). New version of "Little Red Ridinghood" to develop obedience in children.

THE SNORING OF MR. ZE, by Jose Geraldo Reimao (Brazil). Urges the man with tuberculosis to take his wife and family to see the doctor and have X-rays taken of all.

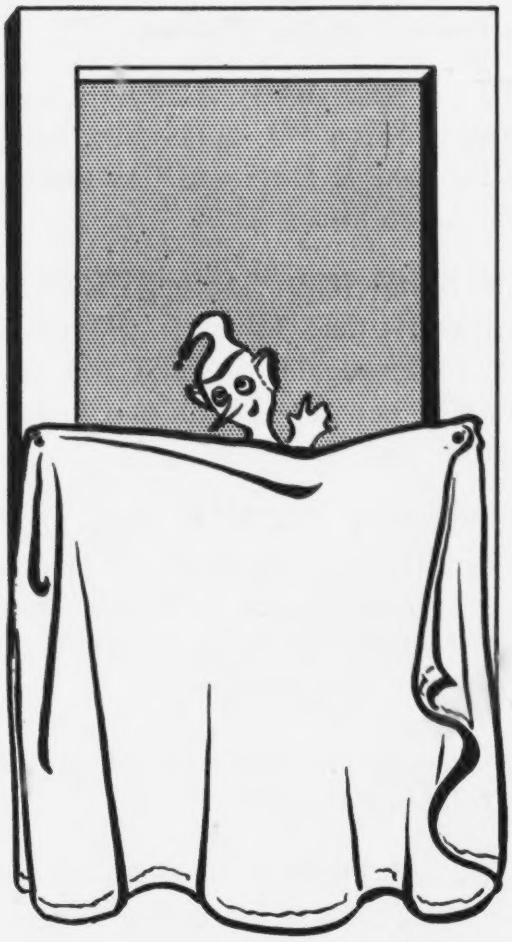
FILTERED WATER IS INSURED HEALTH, by Moema F. de Souza (Brazil). Urges people to drink boiled and filtered water and to go to the health center in case of sickness.

Some important facts about puppets for you to think about:

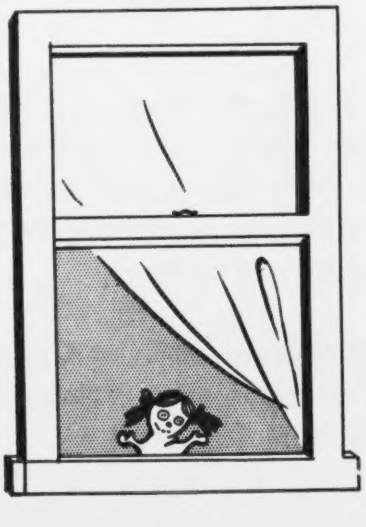
1. Use of puppets is the simplest and most direct method of imitating human beings in action, outside of the stage or the motion picture.
2. Puppets plays can be tape recorded so that the person operating the puppets only has to supply the action as the recording is given.
3. A good puppet show can be filmed or you may want to make slides which can be used for large audiences in remote areas where your puppet show would be impractical to take.

(Adapted from the Latin American Audio Visual Communications Seminar Report, March 10-June 10, 1958).

There are many ways to make a stage for puppets. Here are a few:

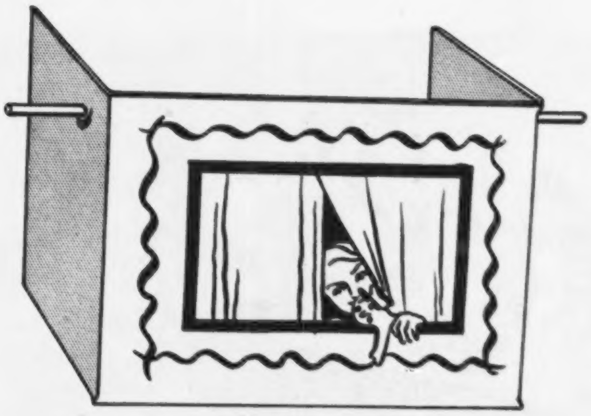


This useful and inexpensive stage can be made by fastening blankets or sheets across the bottom half of a door opening.

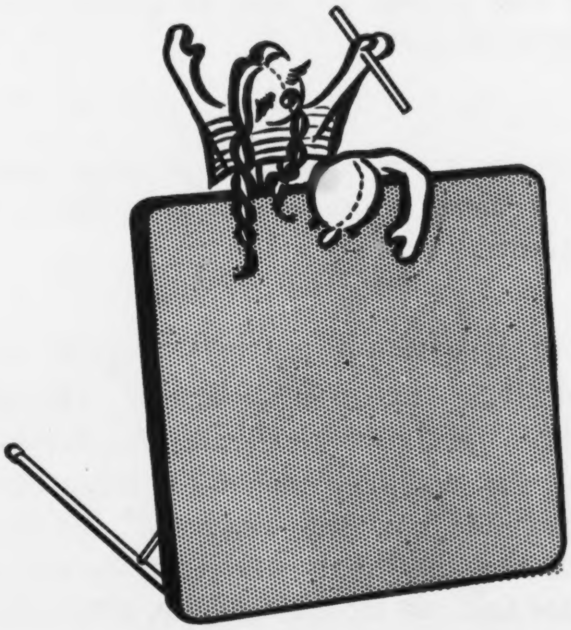


Open windows may also be used.

Chairs with cloth materials draped over them can serve as a temporary puppet stage.



This stage can be easily made with a large cardboard box. Cut the top and one side out and then cut out the stage to the size you want. A curtain can be hung from a stick or rod fastened to the sides of the box.



Card tables or kitchen tables make a fine screen to get behind to perform your puppet play.

EXHIBITS AND DISPLAYS

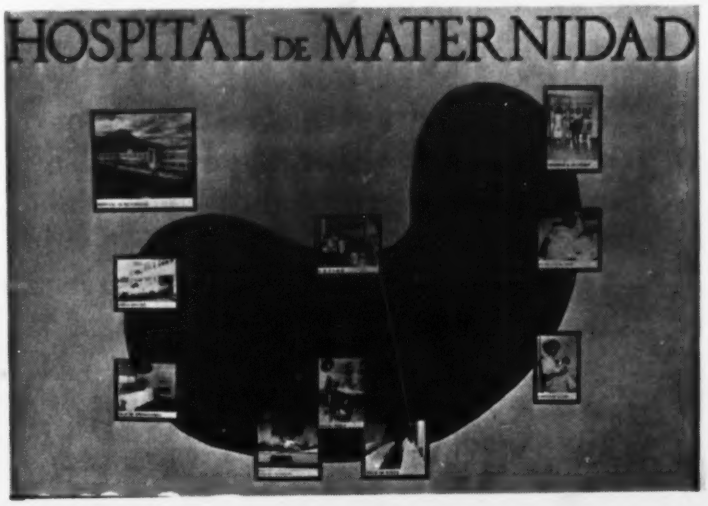
The primary purpose of an exhibit or display is to get the attention of masses of people, to motivate them, interest them or get them to take some action on the subject you are showing. The information which is presented will be much more detailed than you could give with any other media, and several kinds of visuals may be used to attract the viewer's interest. Of course all of the material should be prepared so that each part of the exhibit is directly related to the total presentation. Viewers should be able to acquaint themselves as completely as possible with your theme.

As in preparation of all visuals, the first and most important step is the planning of the exhibit. You must decide who the audience is going to be, and what you want the audience to do after they have seen the exhibit.

THIS IS A WORKING MODEL
—TRY IT—

Exhibits should have some single device which will attract the people to it. This may be a splash of color, continuous slide showings, a tape recording, an electric device, or a moving object.

The most effective exhibits are built around a single idea, using simple, understandable pictures or illustrations and few words. It is suggested that you prepare a cardboard model of the exhibit in scale to the actual space which you can use. If possible, ask audio visual specialists to assist you in selecting the materials to be used, the colors and the form which the exhibit will take.



Make the central idea of the exhibit stand out, so that viewers will know and understand what you are trying to show them. All other materials used, though they relate to the central idea, should be secondary in getting the attention of the viewers.

Here are some suggestions to help you in planning and preparing your exhibit or display:

1. Be sure that the viewer can identify his interests, experiences and needs with your presentation.

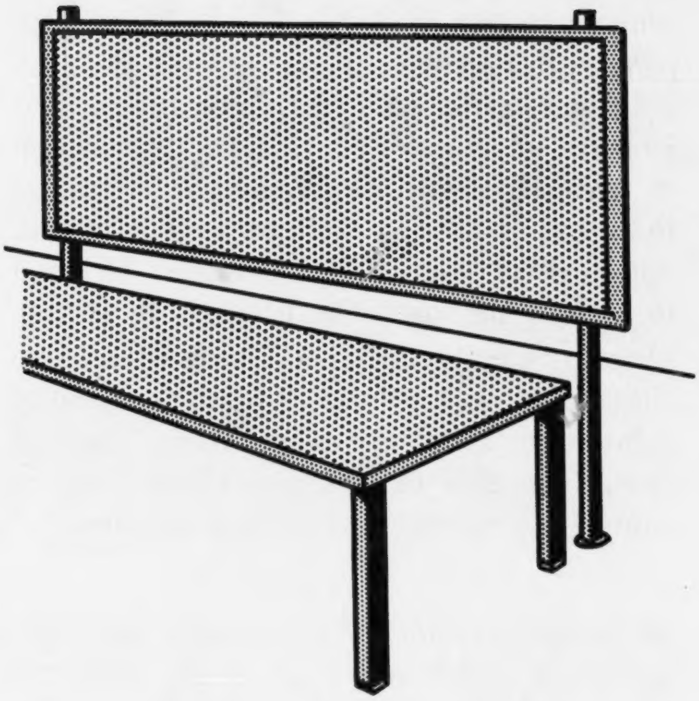
2. Keep all written material to a minimum. You can assist the viewer in getting the primary ideas of the exhibit by varying the sizes of the captions or signs which you use.

3. A neutral background is desirable, with two or three colors used for attention-getting purposes.

4. Don't use too many materials in your exhibit. Let a few outstanding, well-placed visuals present the idea. If there are too many materials used, the viewer may not be able to understand what you are trying to show him.

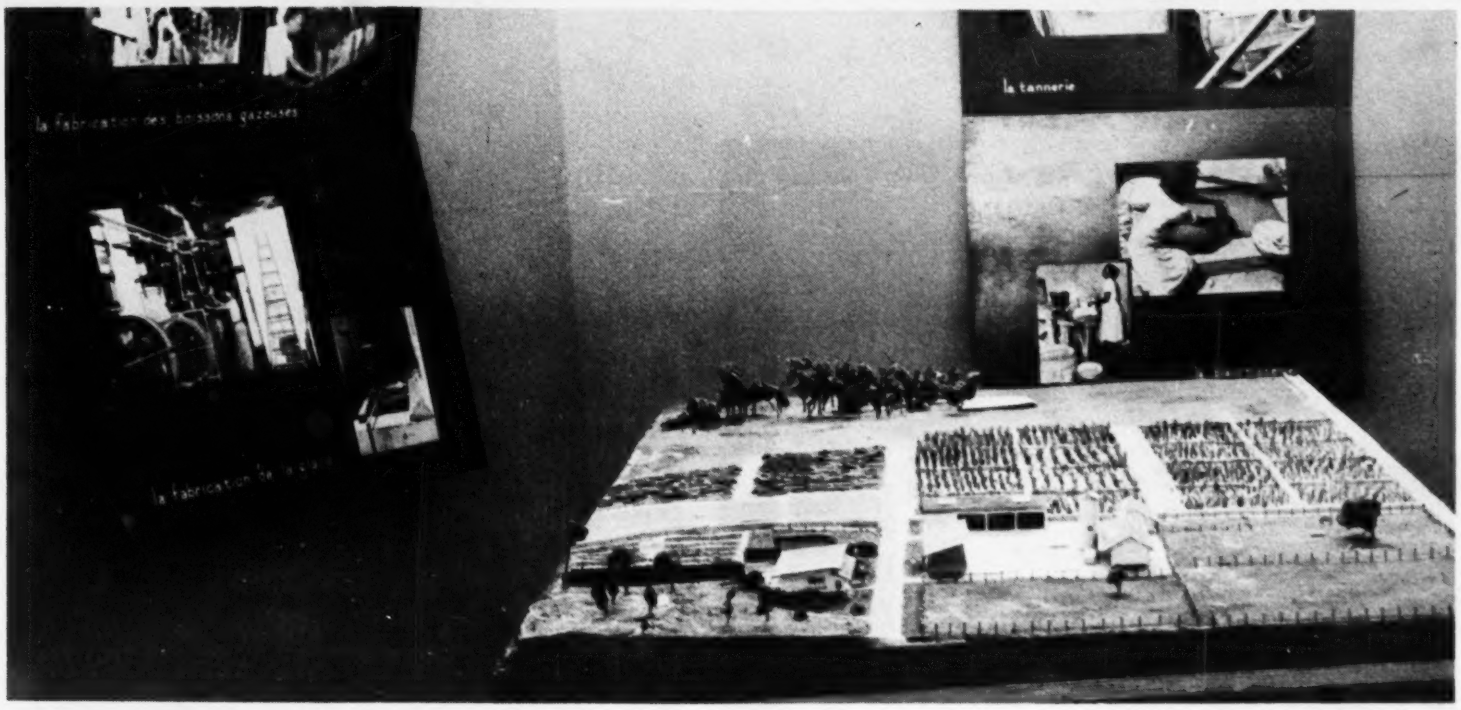
5. The central or key material for your exhibit should be near the eye level of your audience. Remember that materials above seven feet or below three feet will not be seen as well and will not attract as much attention.

Health centers, schools, agriculture extension offices or special government departments may have space where permanent exhibits can be set up, or where the same background support can be used for different exhibits.

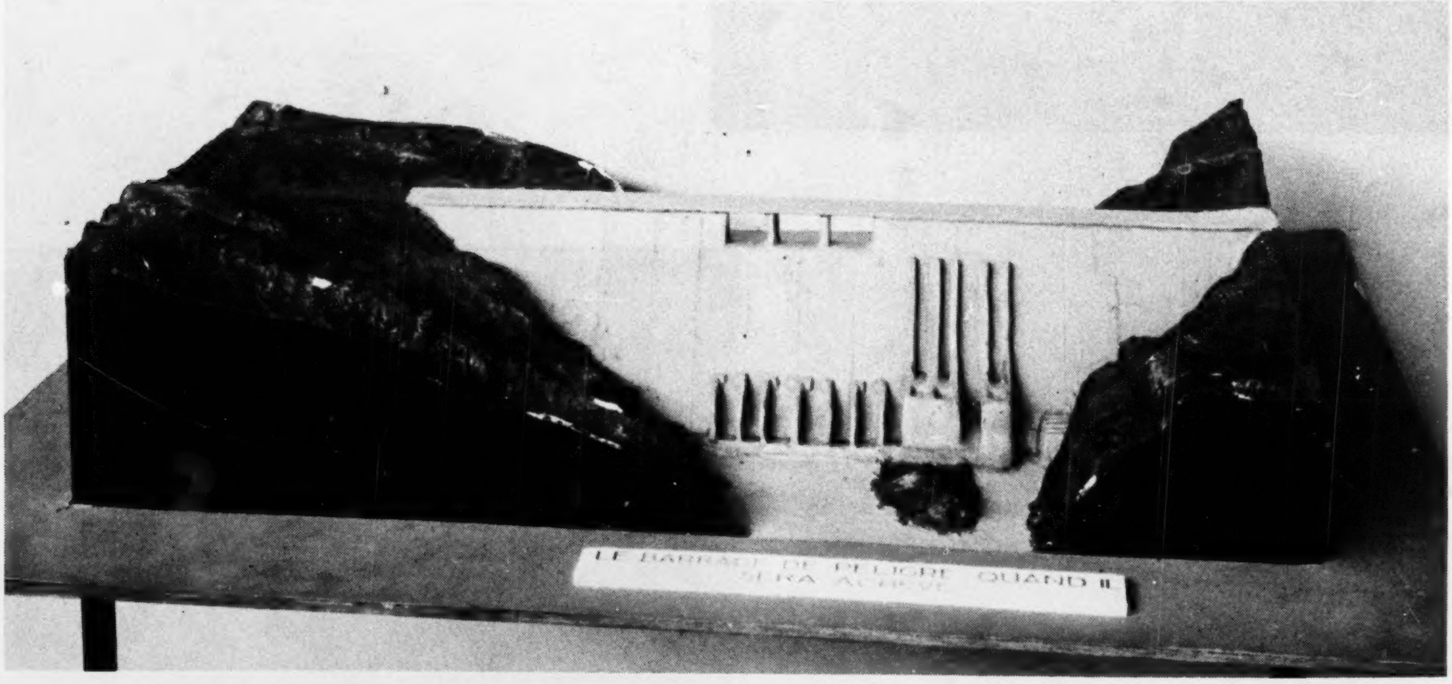


Permanent or changing exhibits can be displayed on walls, tables, bulletinboards, or panels which are fastened to the floor. You should decide if you want your exhibit to be placed on walls, on tables or set up with supports. If the exhibit is to be carried from village to village, consideration must be taken in building it so that it is portable and easy to handle. Small hinged bulletinboards can be prepared with the material permanently placed on them. Loose objects such as specimens, models, signs, etc., may be carried in boxes, and placed in position any time you set up the display.

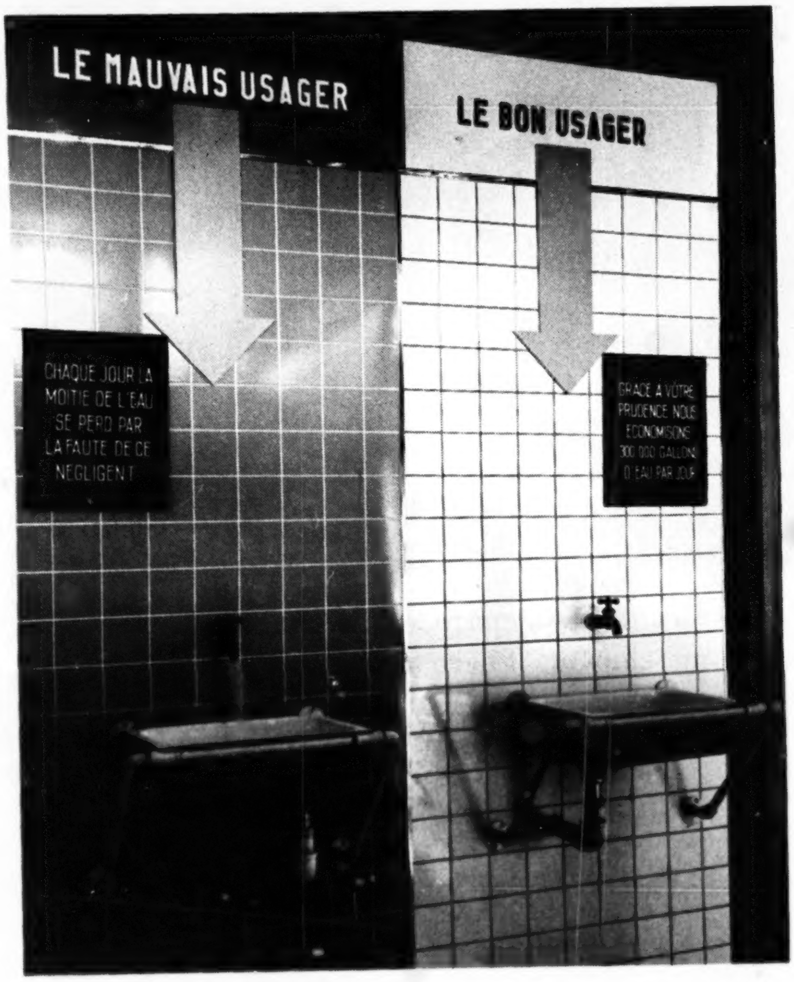
(Adapted from "Using Visuals in Agricultural Extension Programs, ICA").


la fabrication des boissons gazeuses
la fabrication de la glace
la tannerie

Notice that the photographic displays along the walls are separated so that full attention can be given to the individual subjects being shown. There are no other objects or models on the walls to detract from the viewers' attention. On the table is a realistic model showing examples of a well-irrigated farm and a farm which has not used irrigation methods.

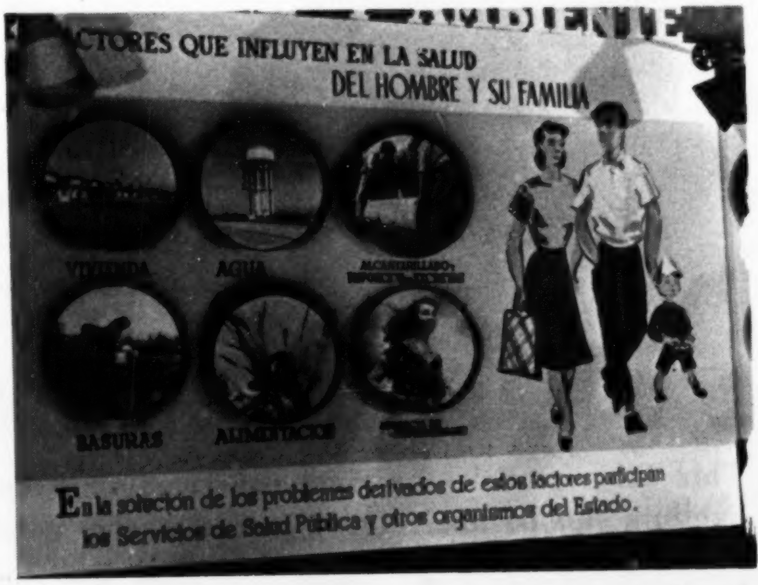

LE BARRAGE DE PELIGRE QUAND IL SERA ACHEVE

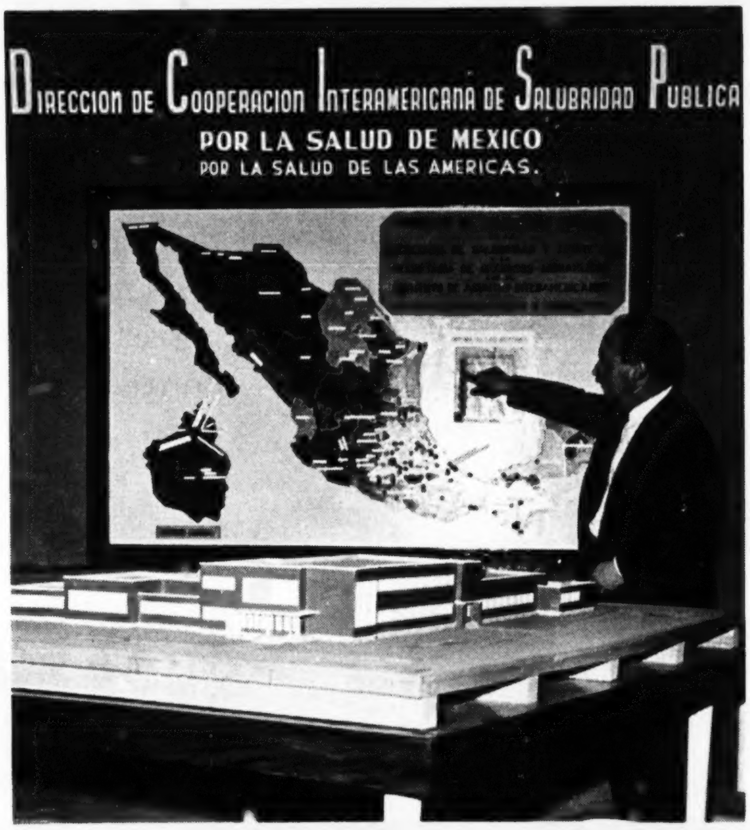
This table model of a dam construction always attracts viewers. Such materials for exhibits can be made from papier-mache, plaster of paris, or clay and painted to give it a realistic look. If detailed models are made which contain parts that are easily breakable, it might be advisable to cover the display with cellophane or to set it back far enough so that viewers will not break it.


LE MAUVAIS USAGER
LE BON USAGER
CHAQUE JOUR LA MOITIE DE L'EAU SE PERD PAR LA FAUTE DE CE NEGLIGENT
GRACE A VOTRE PRUDENCE NOUS ECONOMISONS 300 000 GALLONS D'EAU PAR JOUR

The use of real objects, such as the sinks and faucets with running water, makes this display realistic to the viewers. The purpose of this particular exhibit was to point to the importance of keeping the water turned off when it was not needed and that by doing this, thousands of gallons of water were saved during the year. Notice the arrows pointing down to the objects from the titles. The use of tile on the background provides a realistic setting for the sinks.

This large display to show various factors which influence family health, successfully utilized photographs and illustration with few words.

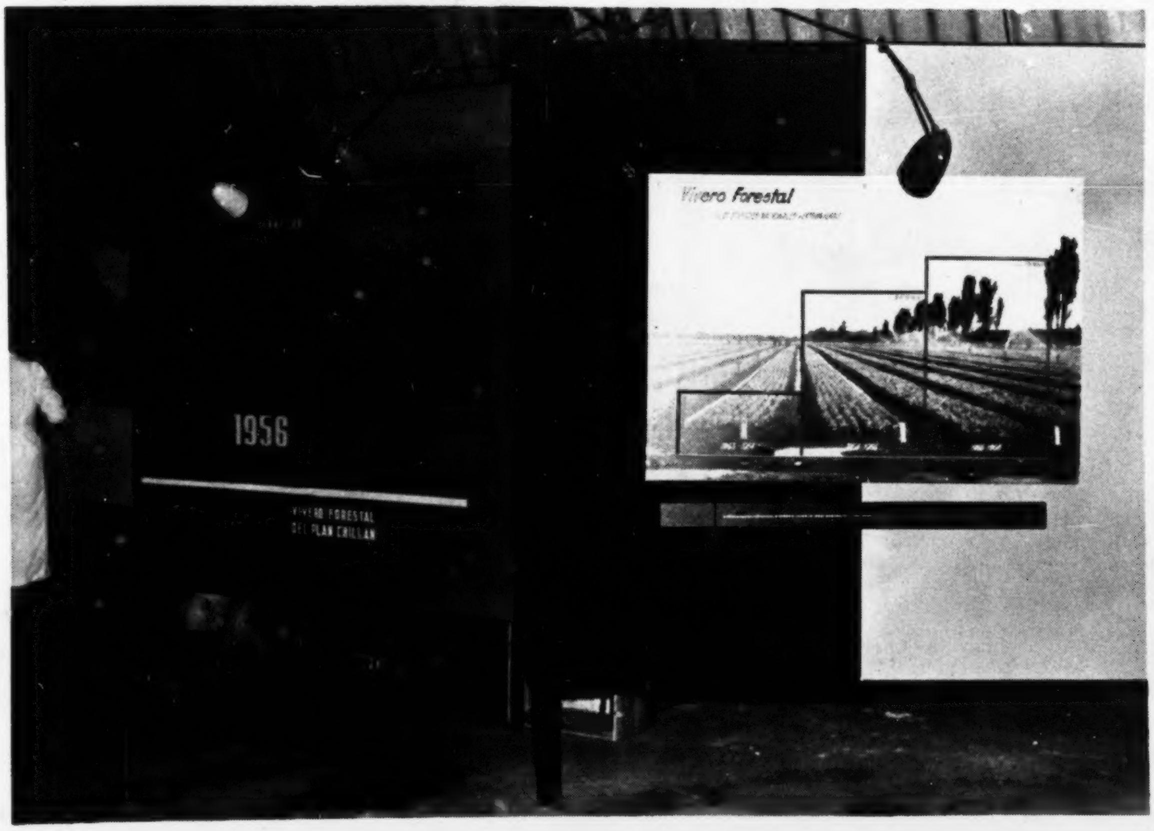

CTORES QUE INFLUYEN EN LA SALUD DEL HOMBRE Y SU FAMILIA
VIVIENDA
AGUA
ALCANTARILLADO
BASURAS
ALIMENTACION
En la solución de los problemas derivados de estos factores participan los Servicios de Salud Pública y otros organismos del Estado.


DIRECCION DE COOPERACION INTERAMERICANA DE SALUBRIDAD PUBLICA
POR LA SALUD DE MEXICO
POR LA SALUD DE LAS AMERICAS.

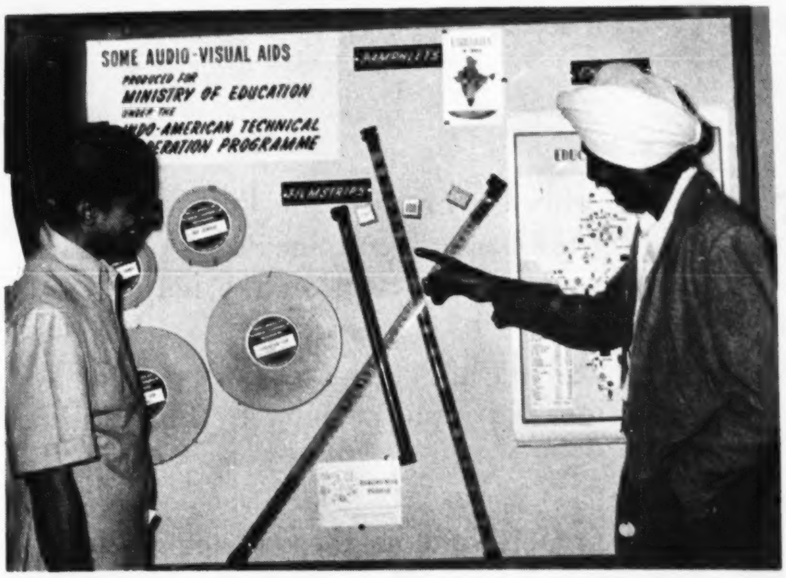
When viewers pressed the buttons on the map in the background, locations of health centers would light up on the map.

The lettering above the map attracted the attention of people passing by the exhibit area.

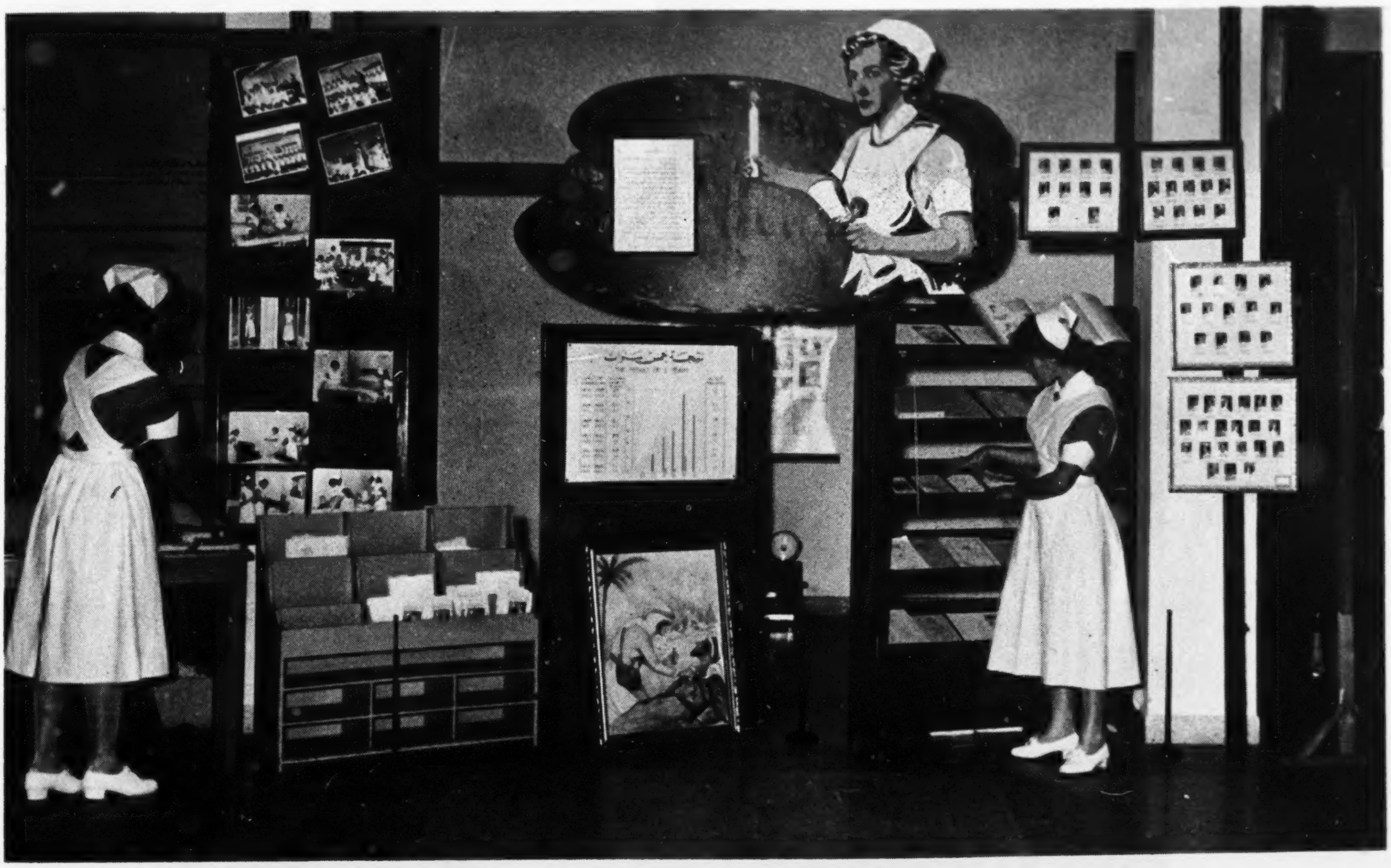
Scale models such as the one shown in the foreground can be made from blocks of wood, cardboard, or other stiff materials, and painted.


Vivero Forestal
1956
VIVERO FORESTAL
DEL PLAN CHILLAN

This attractive display on forestry utilized the technique of overlaying a graph on an enlargement and using very few words.


SOME AUDIO-VISUAL AIDS
PRODUCED FOR
MINISTRY OF EDUCATION
UNDER THE
DO-AMERICAN TECHNICAL
ERATION PROGRAMME
PAMPHLETS
FILMSTRIPS

This bulletin display shows in a few words what a program has to offer. The materials are attractively placed, and although there is a variety of materials, they do not clutter the display area. Objects such as the film strips and motion picture cans help to get the idea across.



The purpose of this exhibit was to encourage young women to enter the nursing field. Good use has been made of photographs to show activities and nurses who have already graduated, as well as supplying hand-out literature which viewers could take home.